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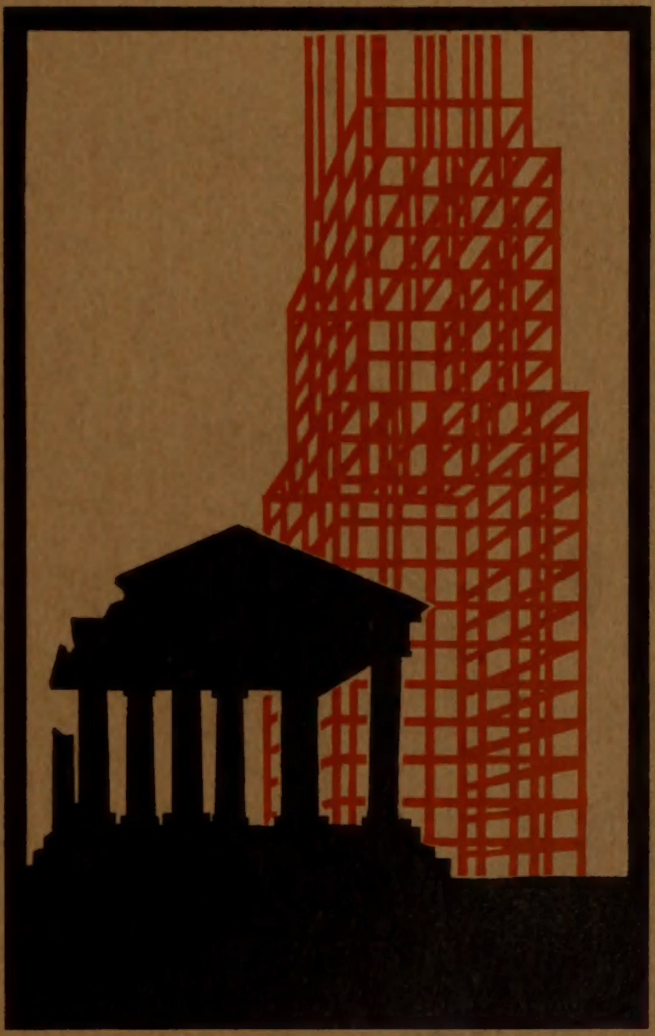

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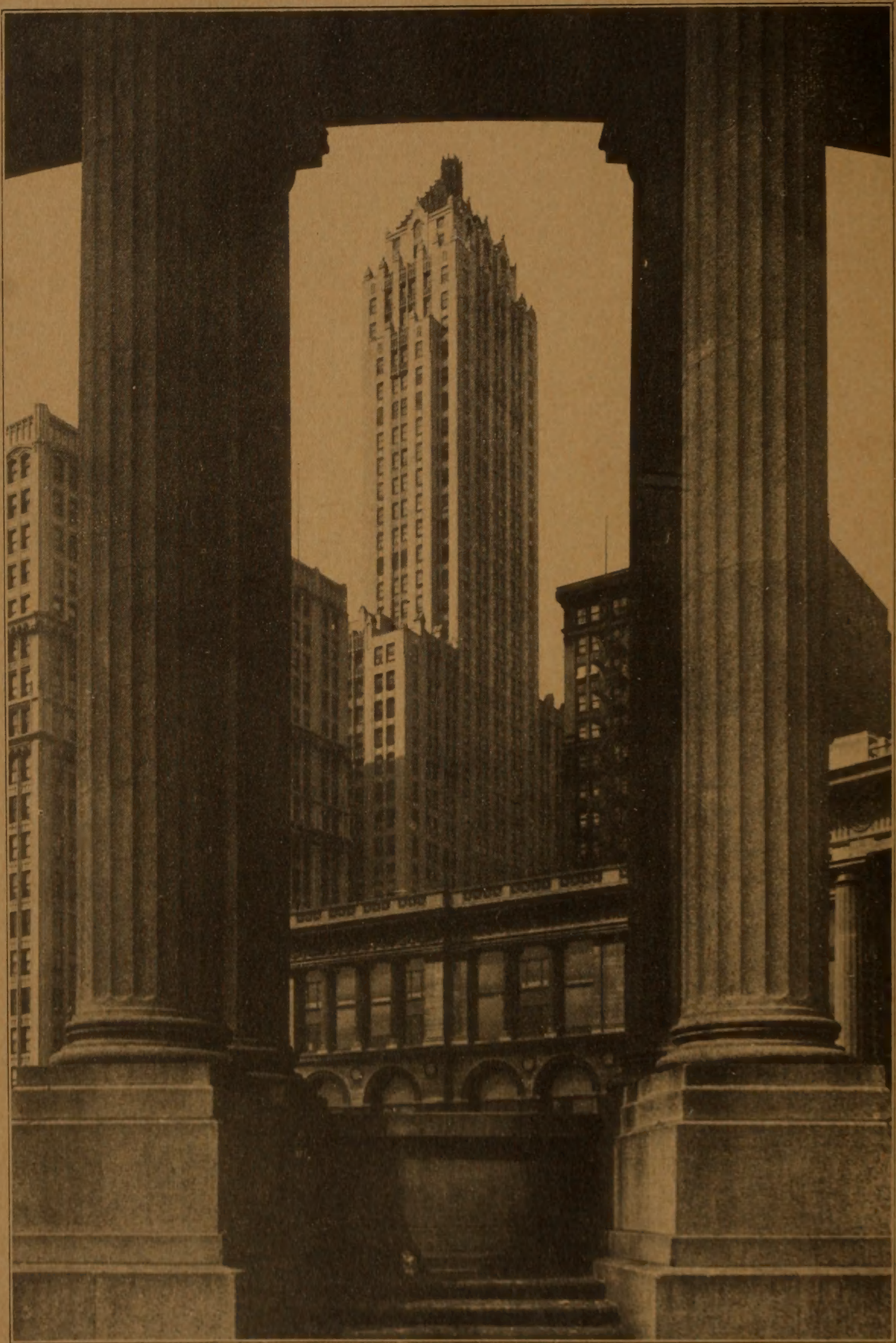

The Pittsfield Building, Chicago, is of that new group of American city buildings forming, in the opinion of many, a distinctively national type of architecture. Graham, Anderson, Probst and White, architects; Henry Ericsson Co., contractor, Chicago. The 148,000 sacks of Universal cement used in this structure were furnished by Howard Material Co. and Wisconsin Lime and Cement Co., both of Chicago.

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THE ARCHITECTURAL RECORD

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Articles

PAGE

The Art Museum of Tomorrow *By Clarence S. Stein, Architect* 5–12

Mass-Production and the Modern House *By Lewis Mumford* 13–20

The American Women's Association Building *By Benjamin Wistar Morris, Architect* 37

Standard Practice in the Design of Chimneys and Fireplaces 38–44

Bullock's Wilshire Department Store, Los Angeles *John and Donald B. Parkinson, Architects* 51, 52

Plates

The Glass House for America: Saint Mark's Towers *Frank Lloyd Wright, Architect* *Portfolio in color* 1–4

Portfolio of Current Architecture, Featuring American Women's Association Building, Lawrence Park Properties, Kent Community House, Bullock's Wilshire Store, and Paris Shops *First Section* 21–36 *Second Section* 53–68

Technical News and Research

Prison Architecture *By Robert L. Davison* 69–100

Editorial

Keeping the Architect Educated *By A. Lawrence Kocher* 45

"The Houses in Which Middletown Lives" *By Douglas Haskell* 46, 47

The Architect's Library 156-158 Ad. Section

NOTES ON CONTRIBUTORS

Mr. Clarence Stein is architect of the Wichita and the Pasadena museums, and so speaks as an authority on museum design. He is also known to the profession as the architect not only of numerous public and private buildings, but of the Sunnyside and Radburn developments of the City Housing Corporation.

With his *Sticks and Stones*, published in 1925, *Mr. Lewis Mumford* seemed to many people to be opening a new period of architectural criticism in the United States. A great many of his predictions, made in architectural periodicals as well as in the book, have hitherto come true. This indicates not only a vivid imagination but also the care with which he habitually checks his findings, enlisting the aid of a good many qualified experts in different fields. *Mr. Mumford* is the author also of *The Story of Utopias*, *The Golden Day*, *Herman Melville*, and other books.

Mr. Benjamin Wistar Morris, the architect of the American Women's Association Building, published in this issue, is the designer of many important structures, the best-known probably being the Cunard Building in New York. He is a member of the National Commission of Fine Arts, and a past president of the Society of Beaux-Arts Architects.

The Bullock's Wilshire Department Store is the first project The Architectural Record has been privileged to publish of the work of *John and Donald B. Parkinson, Architects*, of Los Angeles.

In presenting the study on Prison Architecture the editors of The Record wish to make special acknowledgment of the assistance of *Dr. E. Stagg Whitin*, Executive Director of the National Committee on Prisons and Prison Labor.

M. A. Mikkelsen, *Editor* A. Lawrence Kocher, *Managing Editor*

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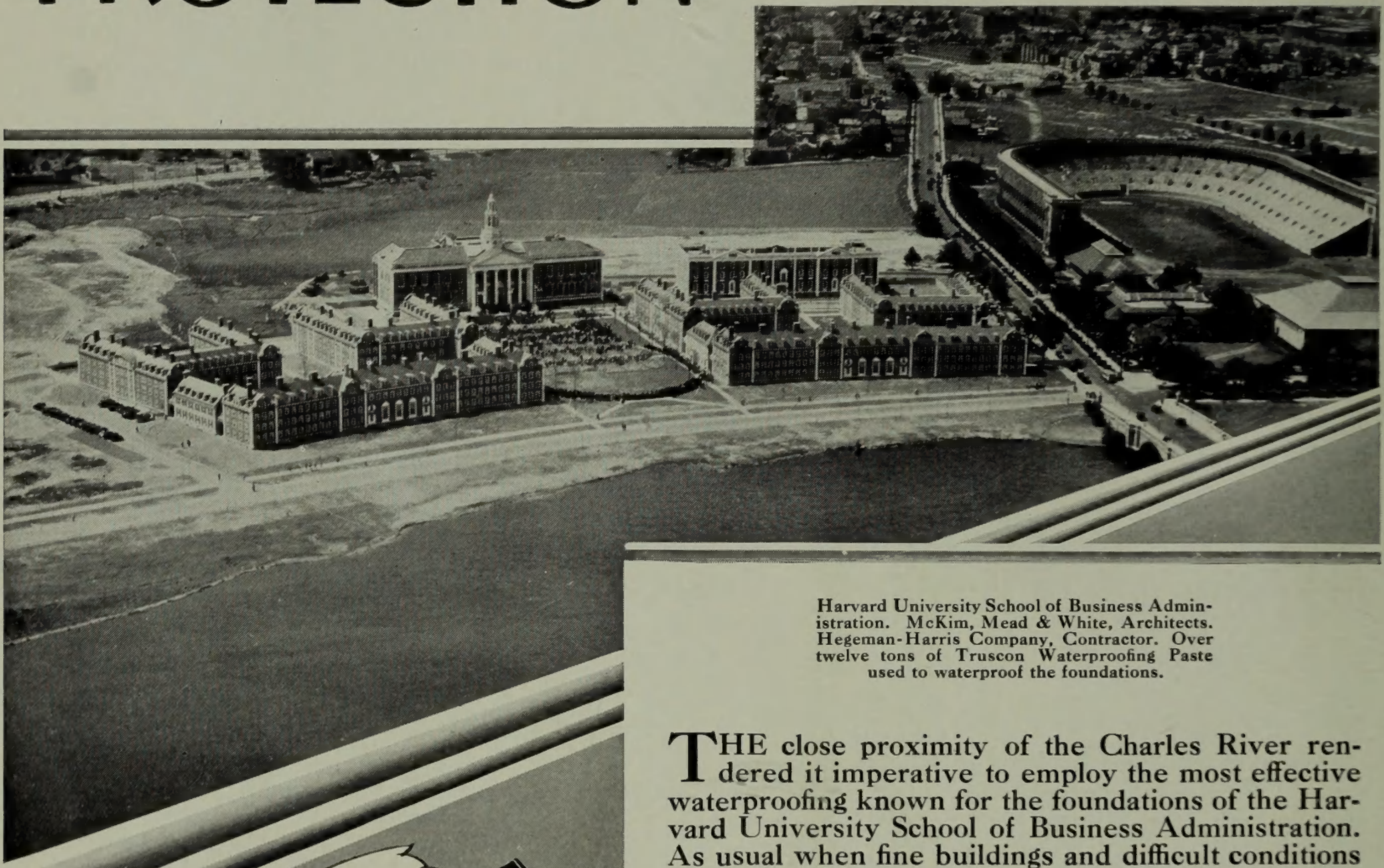

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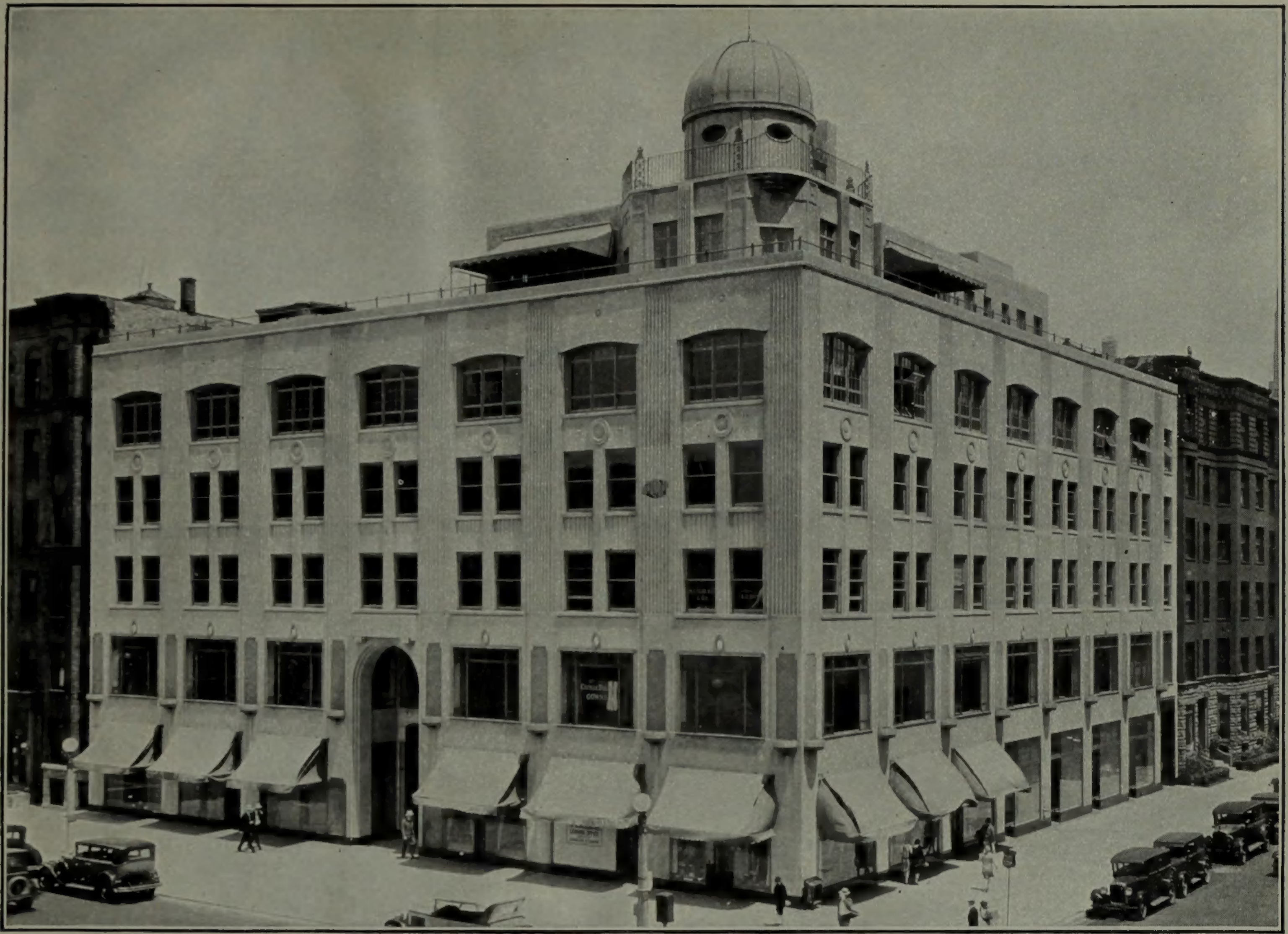

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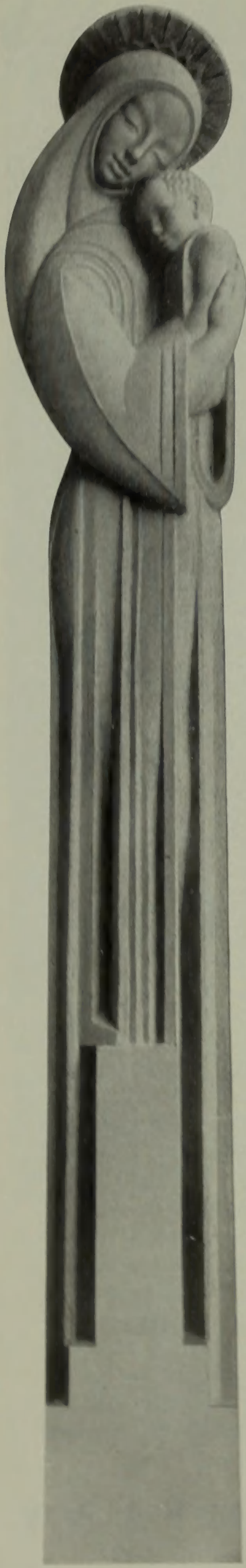

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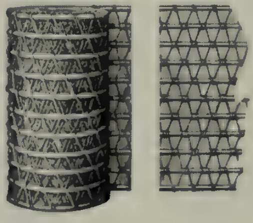

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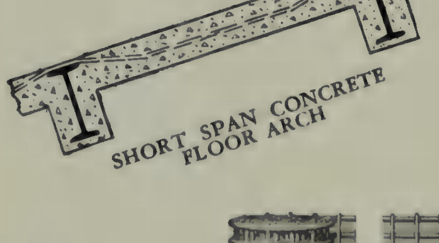

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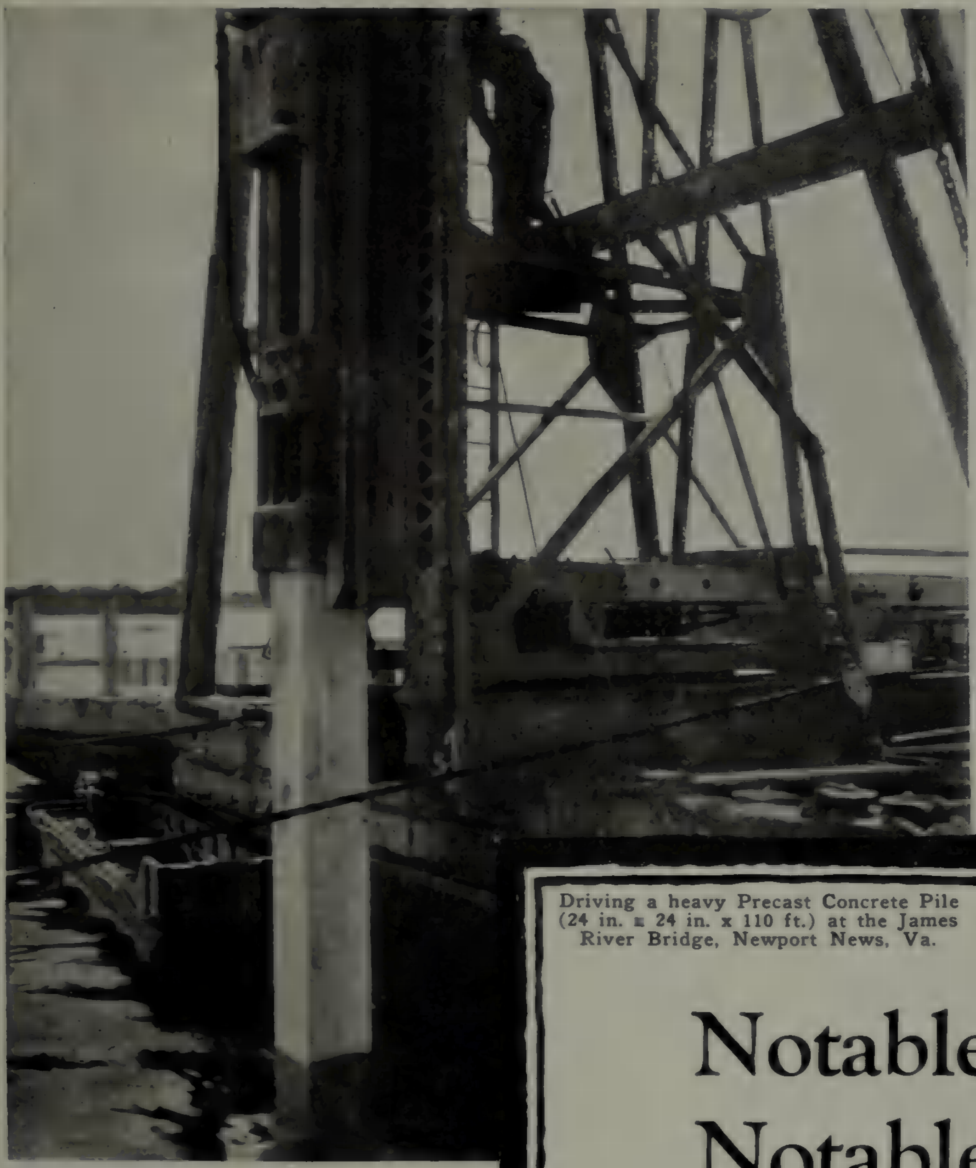

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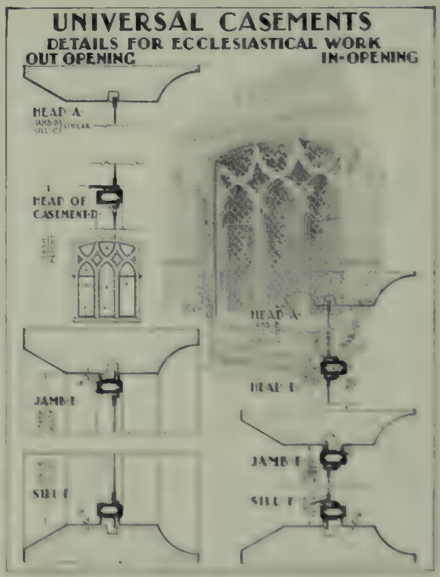
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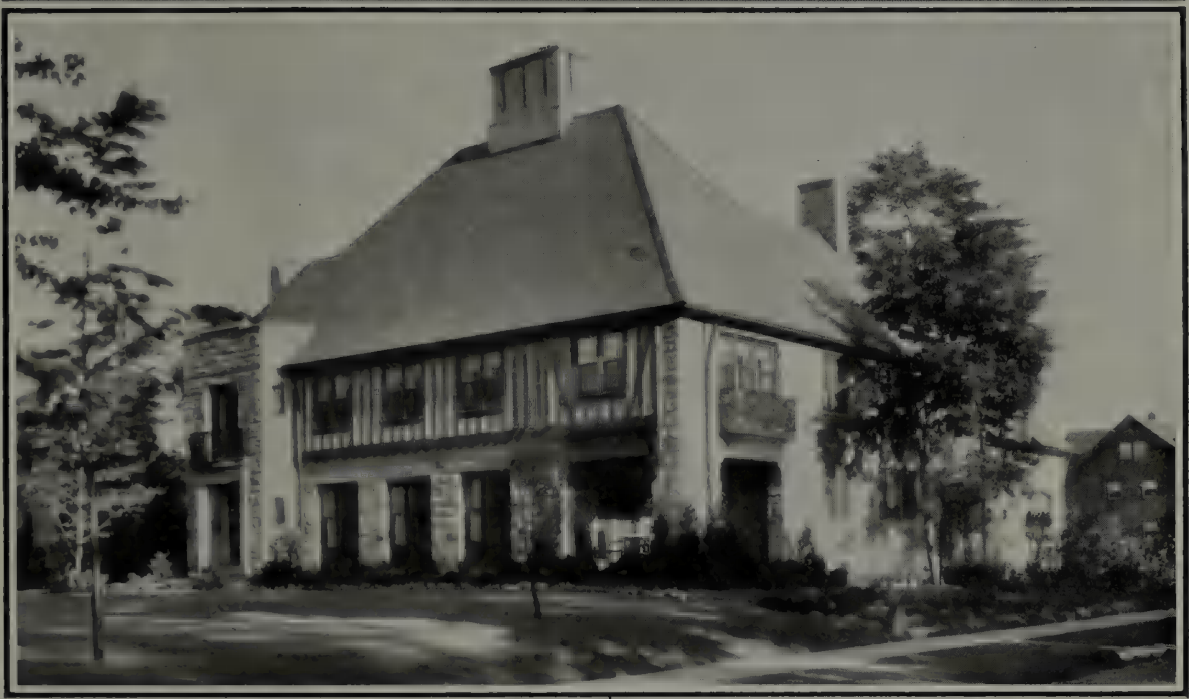

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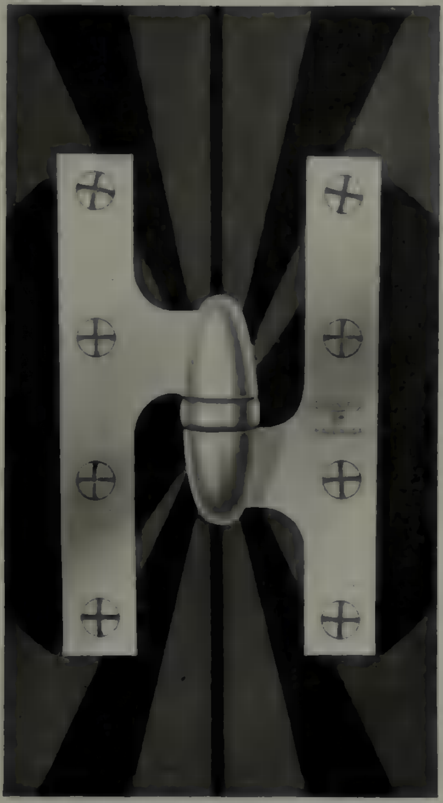

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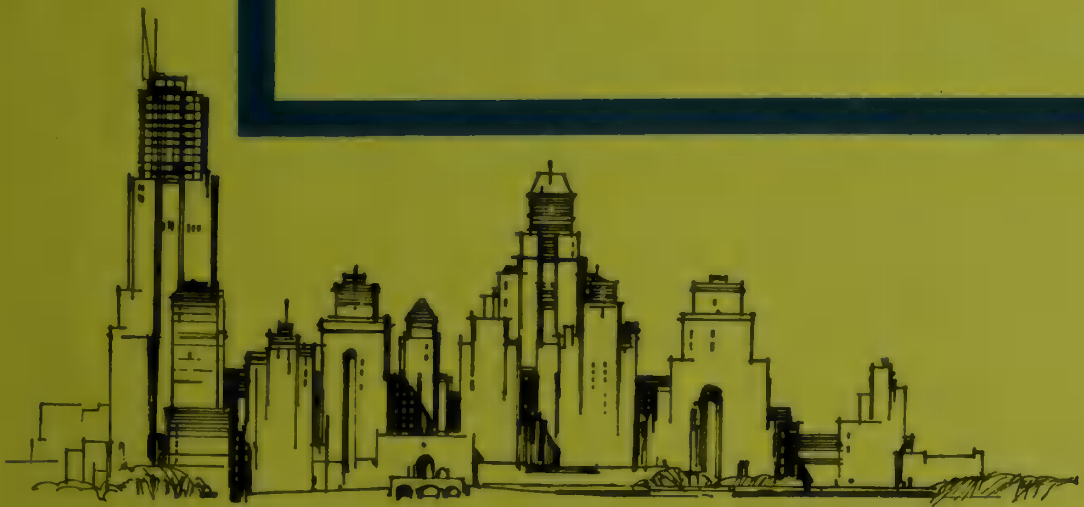

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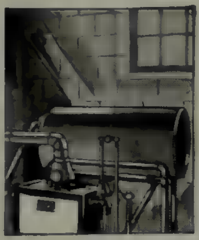
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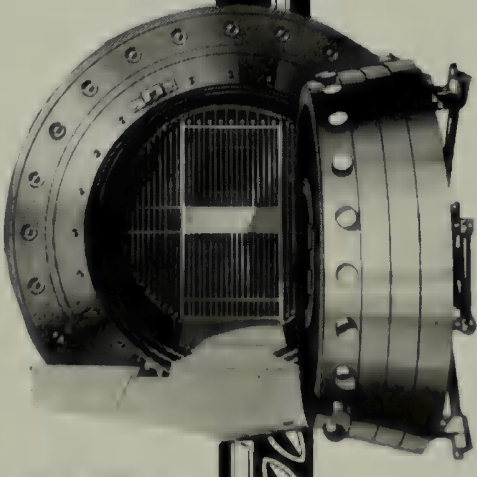

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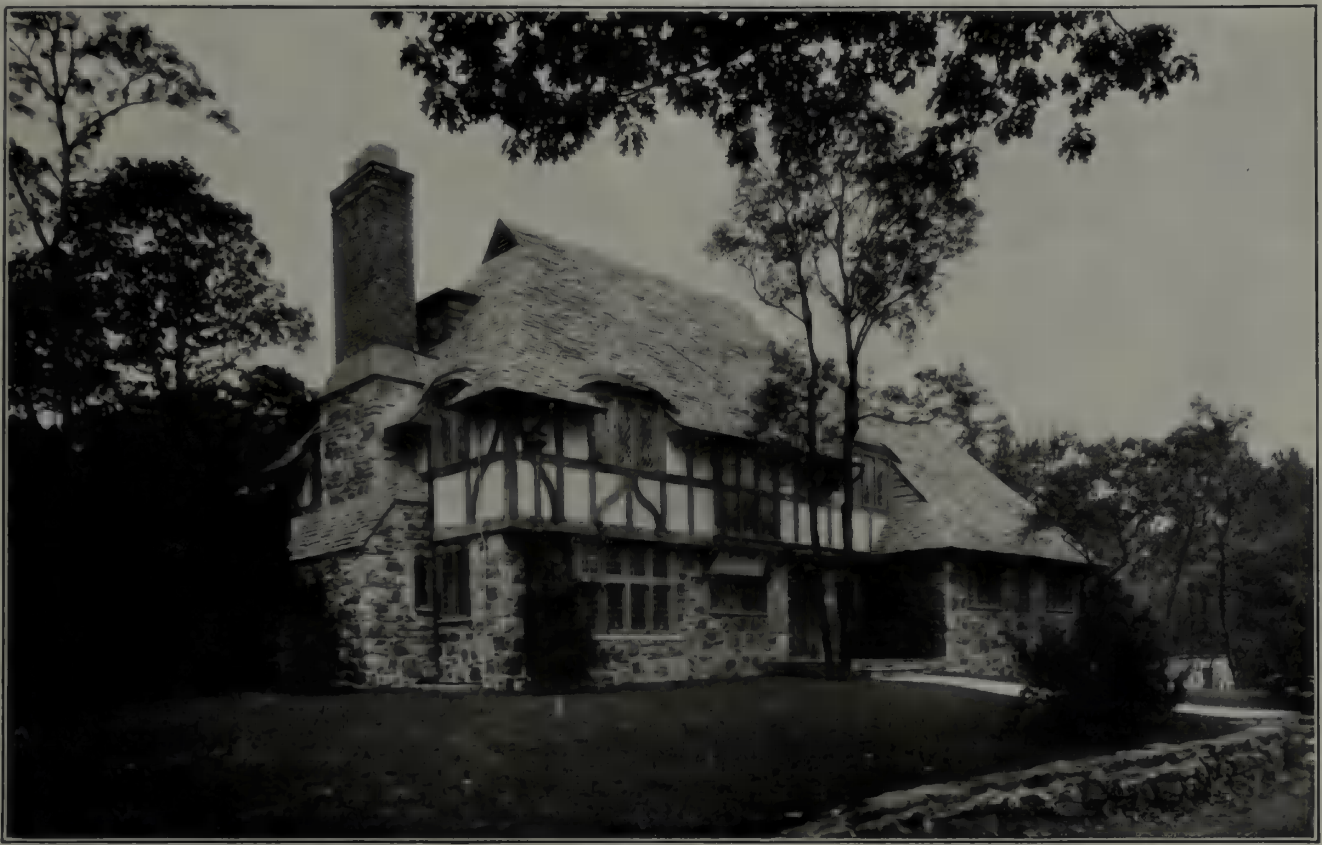

Harmony

A single clash can dash harmony asunder. But here is a home where harmony reigns, where every feature is singularly appropriate to the ensemble. And one can not help recognizing that the "roof of eternal beauty" (which is Sheldon's) contributes liberally toward this happy harmony.

The happily harmonious home shown is that of Harry Hough, Rouken Glen, Larchmont, New York, Hunter McDonnell, Architect, and its roof is a judicious mixture of Sheldon's Grays, Greens, and Pheasants.

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FOR TODAY'S LARGE SPANS

Featherweight Concrete
INSULATING ROOF SLABS

The illustration above is an interior view of the new 124th Field Artillery Armory in Chicago, a building with a clear span of 220 feet. This picture shows the modern, fireproof roof-deck of Featherweight Concrete Slabs which will last as long as the rest of the building, without painting or other maintenance

FOR buildings of broad, clear floor space, the use of lightweight, long span precast roof slabs achieves maximum economy in both the structural steel and the roof-deck itself.

Featherweight Concrete is made of Haydite—the lightweight aggregate used in place of sand—producing *a strong concrete roof-deck weighing as low as 10 lbs. per sq. ft. and offering insulating value in addition.*

These fireproof slabs are affording no-maintenance service on many prominent public buildings like the Armory shown above, the Detroit Municipal Airport Hangar, Adler Planetarium, Shreveport Auditorium, Lawrence College Gym, as well as on buildings of the country's leading industrials and railroads. New "Catalog and Roof Standards" on request.

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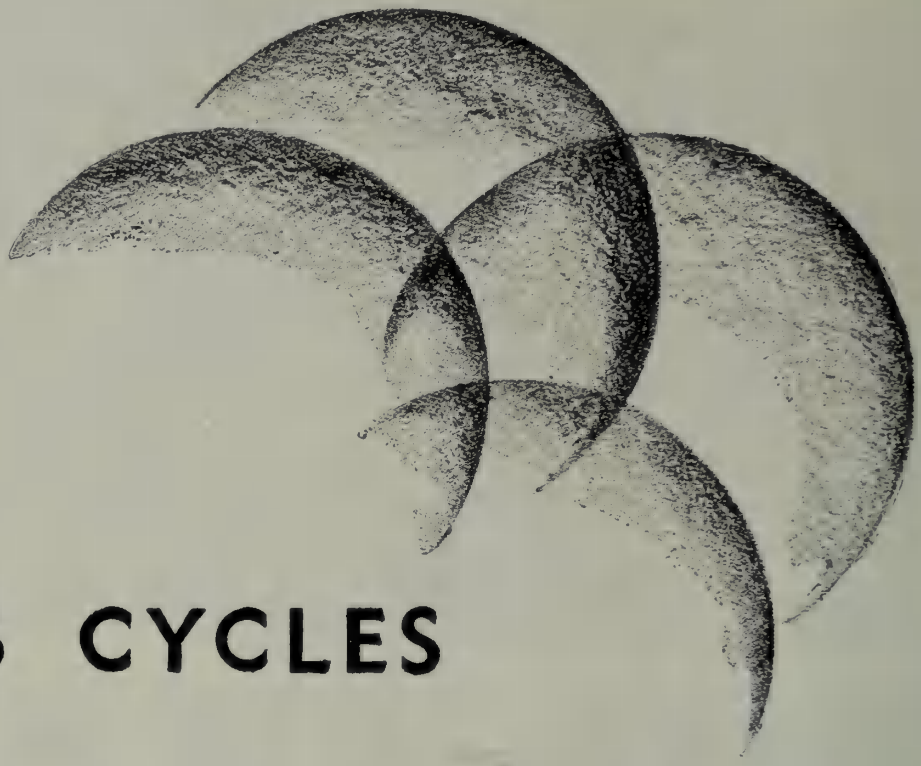

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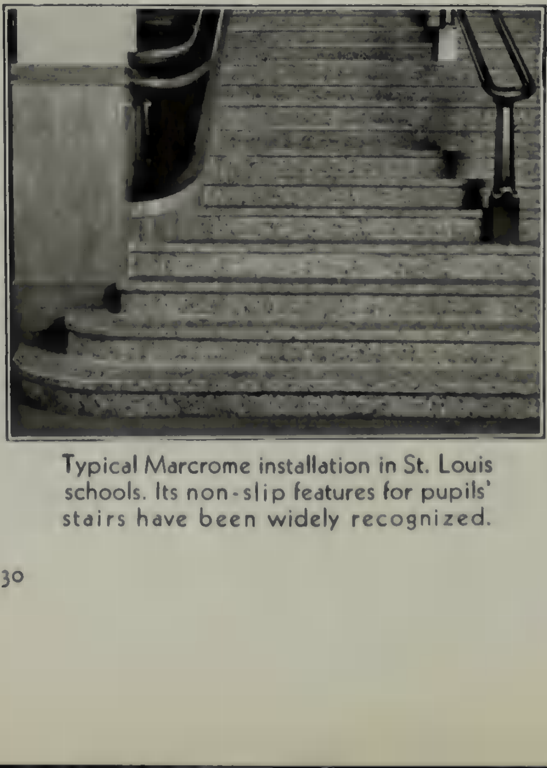

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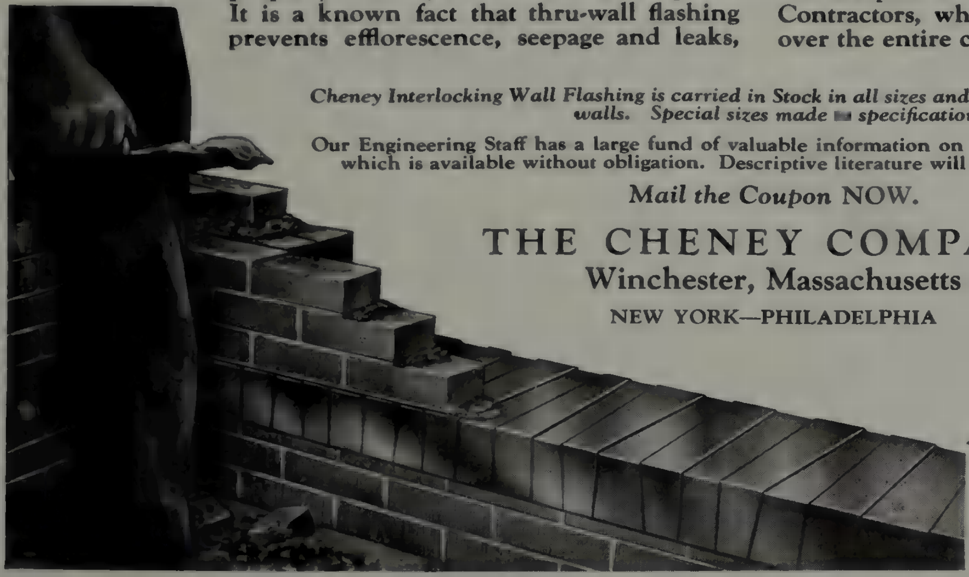

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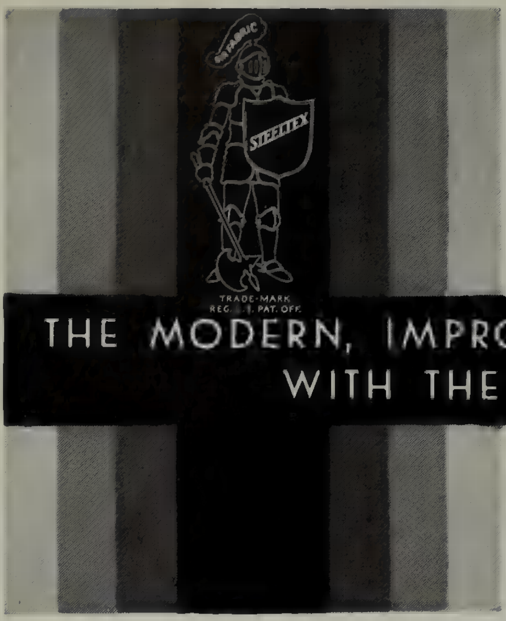

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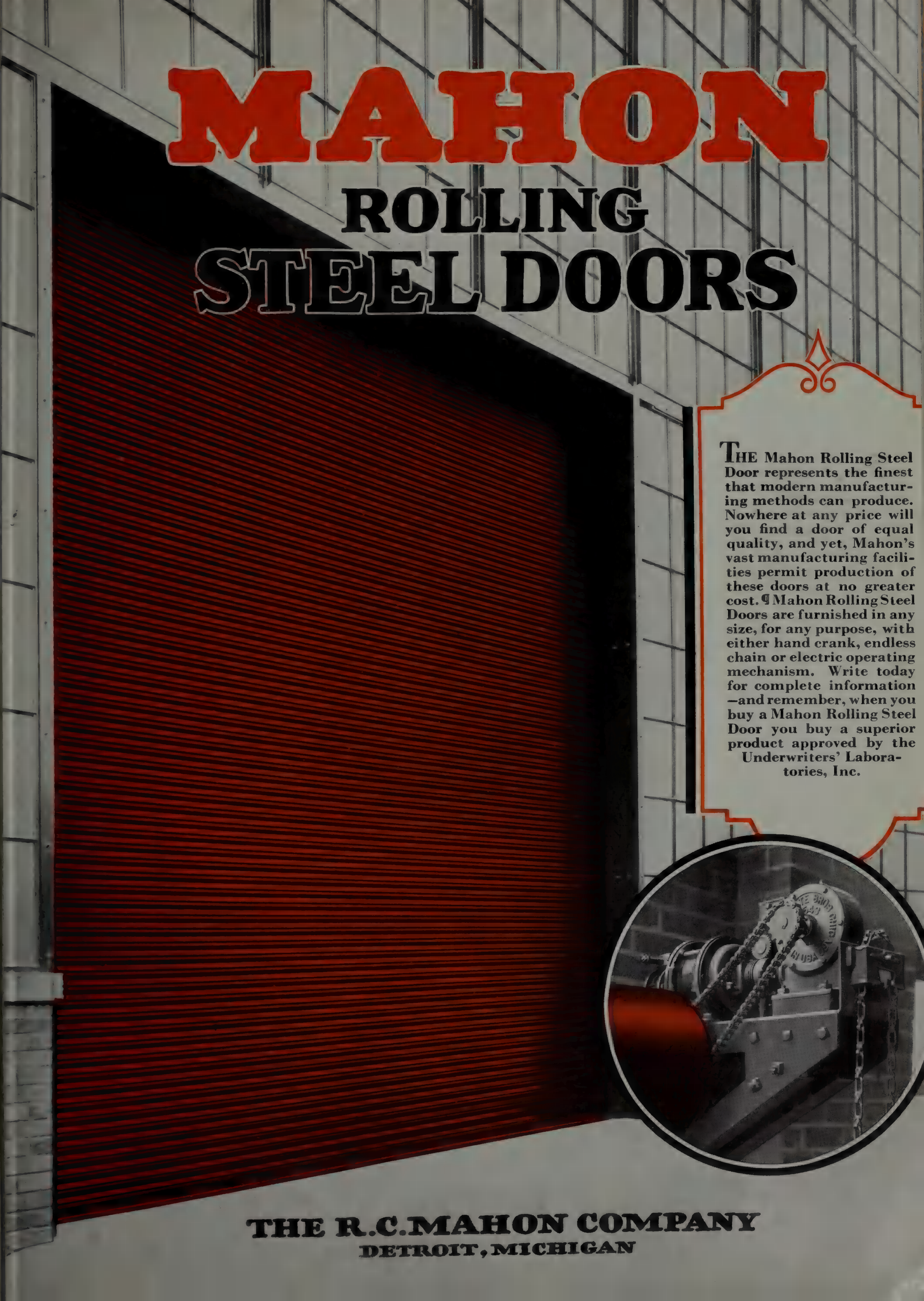

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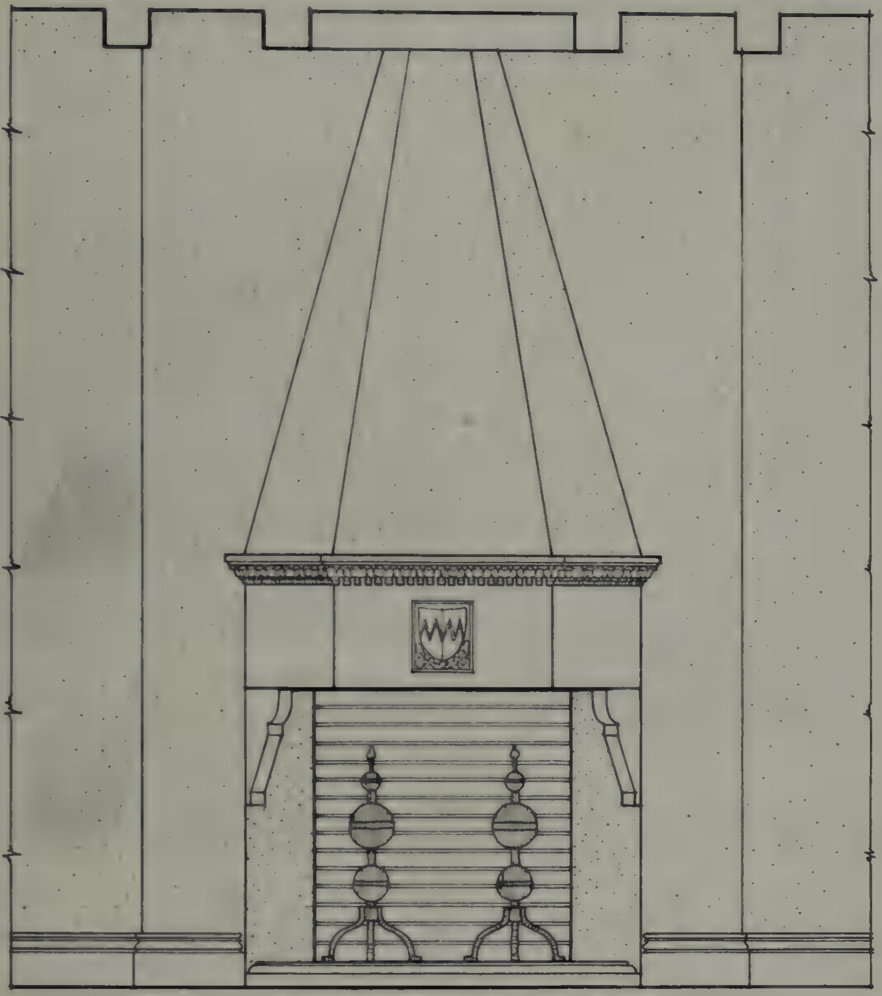

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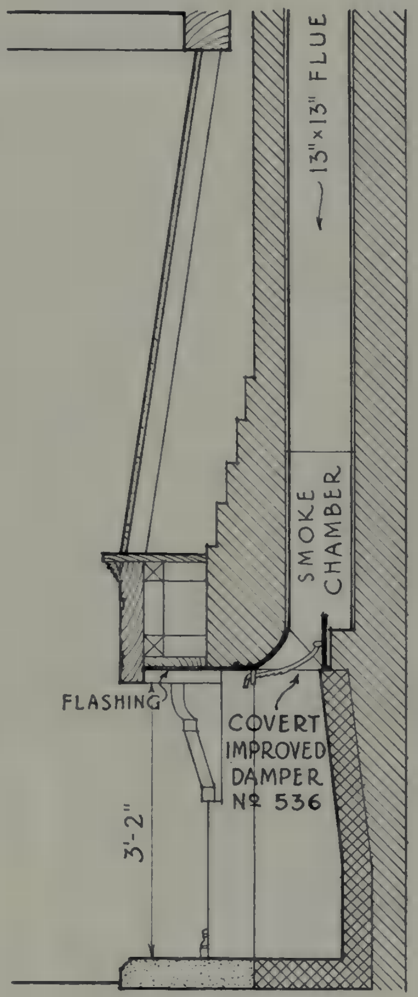

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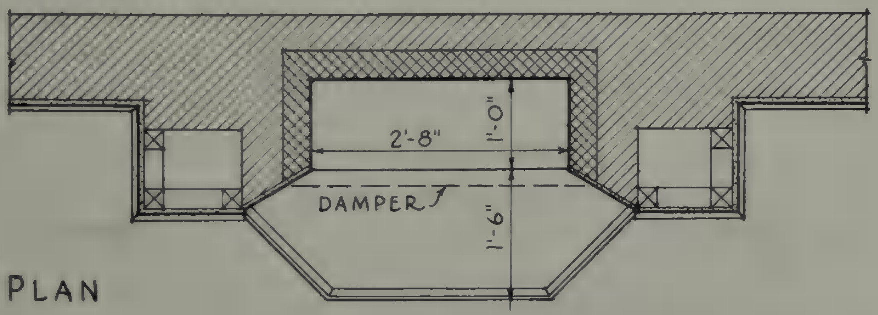

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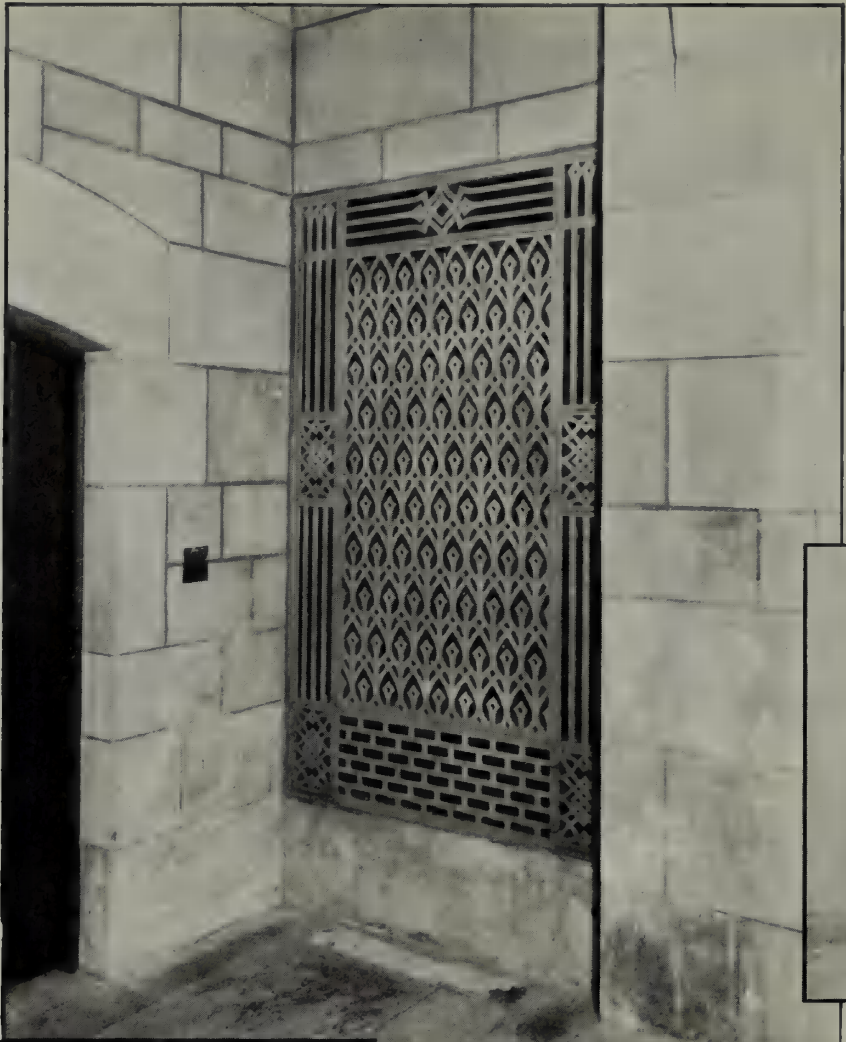
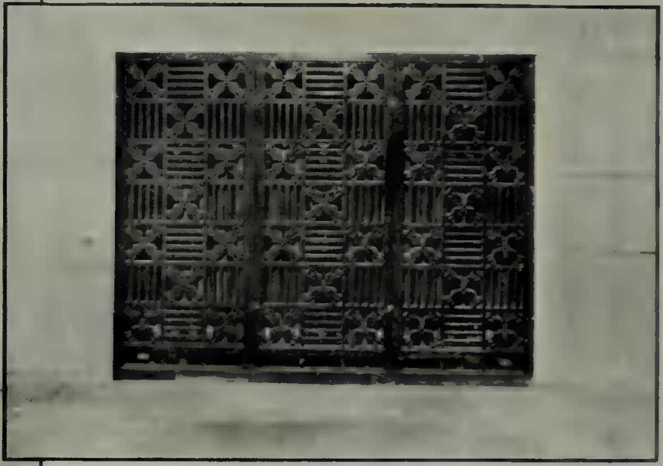
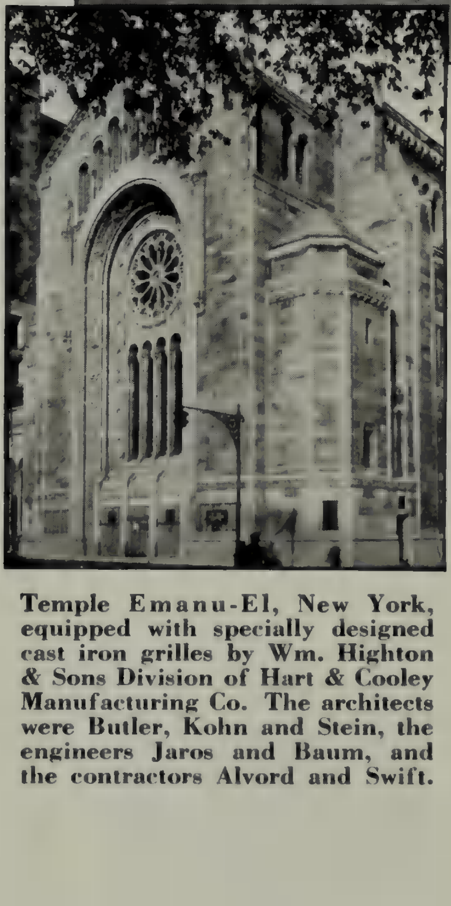




Above are shown two out of several specially designed and specially cast grilles produced by Wm. Highton & Sons Division of Hart & Cooley Mfg. Co., for Temple Emanu-El.



Temple Emanu-El, New York, equipped with specially designed cast iron grilles by Wm. Highton & Sons Division of Hart & Cooley Manufacturing Co. The architects were Butler, Kohn and Stein, the engineers Jaros and Baum, and the contractors Alvord and Swift.

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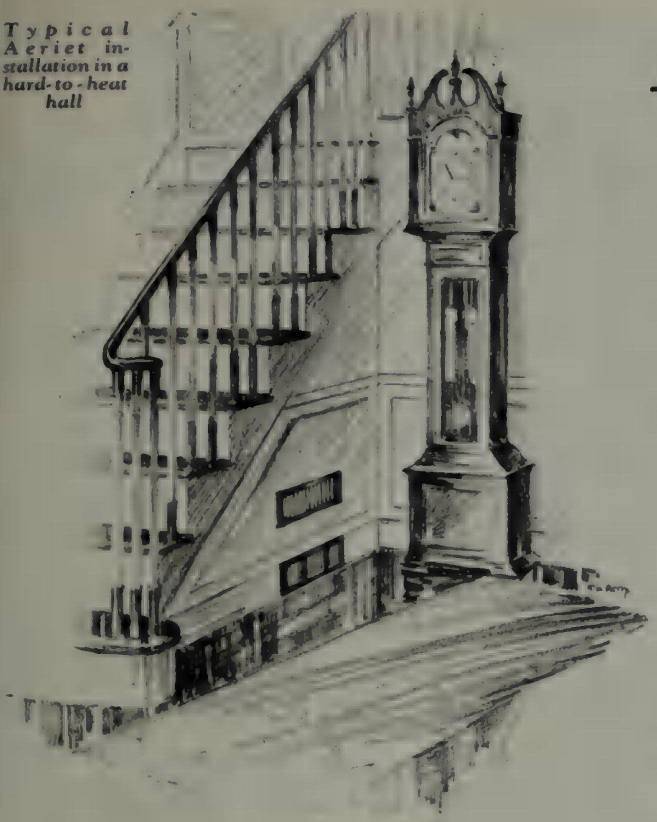

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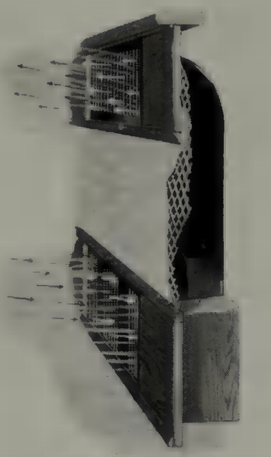

Sectional view of Air-Way Aeriet installed beneath the window and between partitions. Arrows diagram the movement of the cold air entering and warm air deflected out into the room instead of rising along the walls as with old and obsolete systems.

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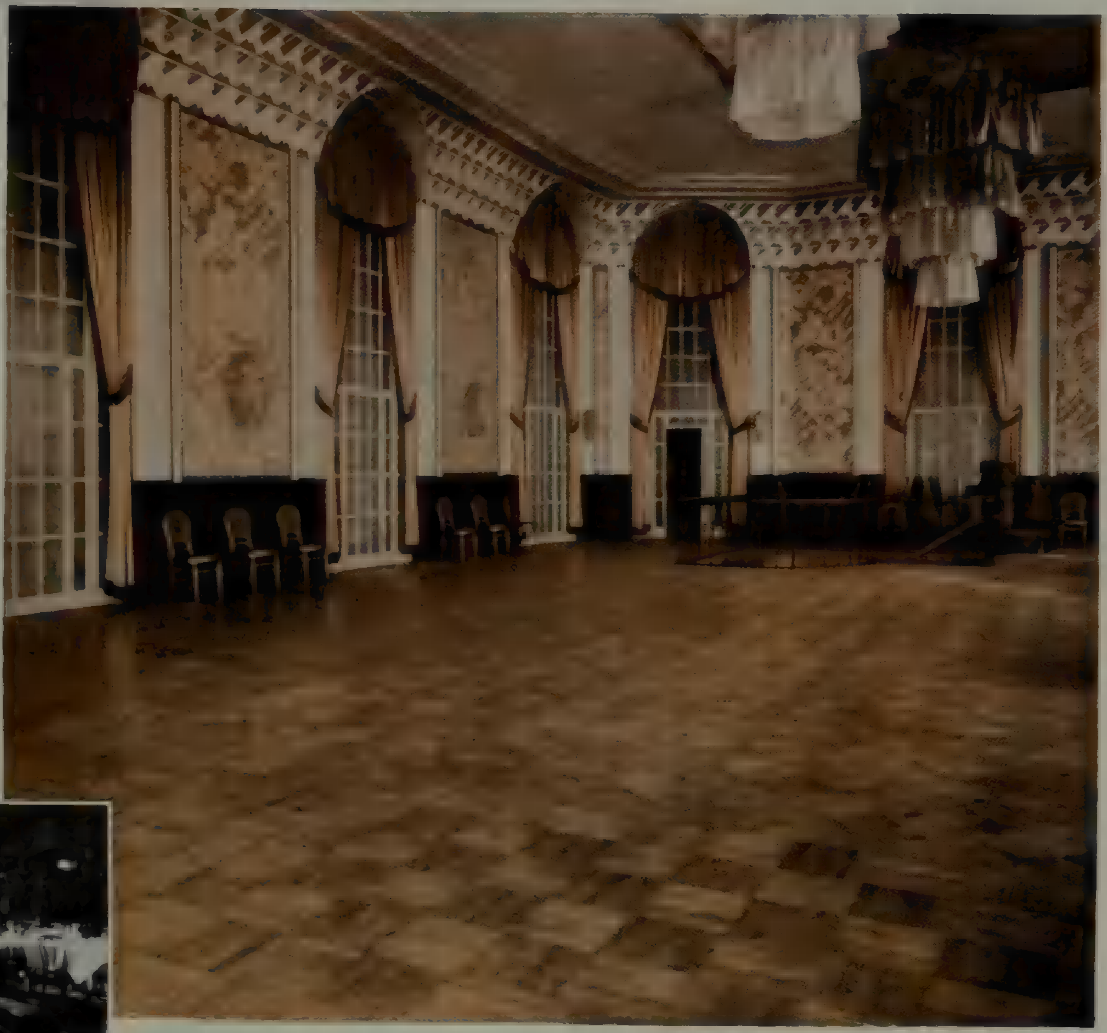

Ballroom in the Tower of the Stevens Hotel, Chicago. Laid by Kaucher Engineering Co., Chicago.

Dance Floor in the Silver Slipper Night Club, Memphis Laid by R. Cluck Flooring Co., Memphis

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The beauty and homelike attractiveness of a design wood floor, in addition to durability and economy in upkeep, is a valuable asset likewise in guest rooms, where Wood Floor Blocks, relieved by "scatter rugs," strike a new note in hotel appointments.

Sold through lumber dealers everywhere; manufactured by

E. L. BRUCE COMPANY	Memphis, Tenn.
THE LONG-BELL LUMBER CO.	Kansas City, Mo.
NASHVILLE HDW. FLOORING CO.	Nashville, Tenn.
ARKANSAS OAK FLOORING CO.	Pine Bluff, Ark.

***CELLized Oak Flooring Inc.**

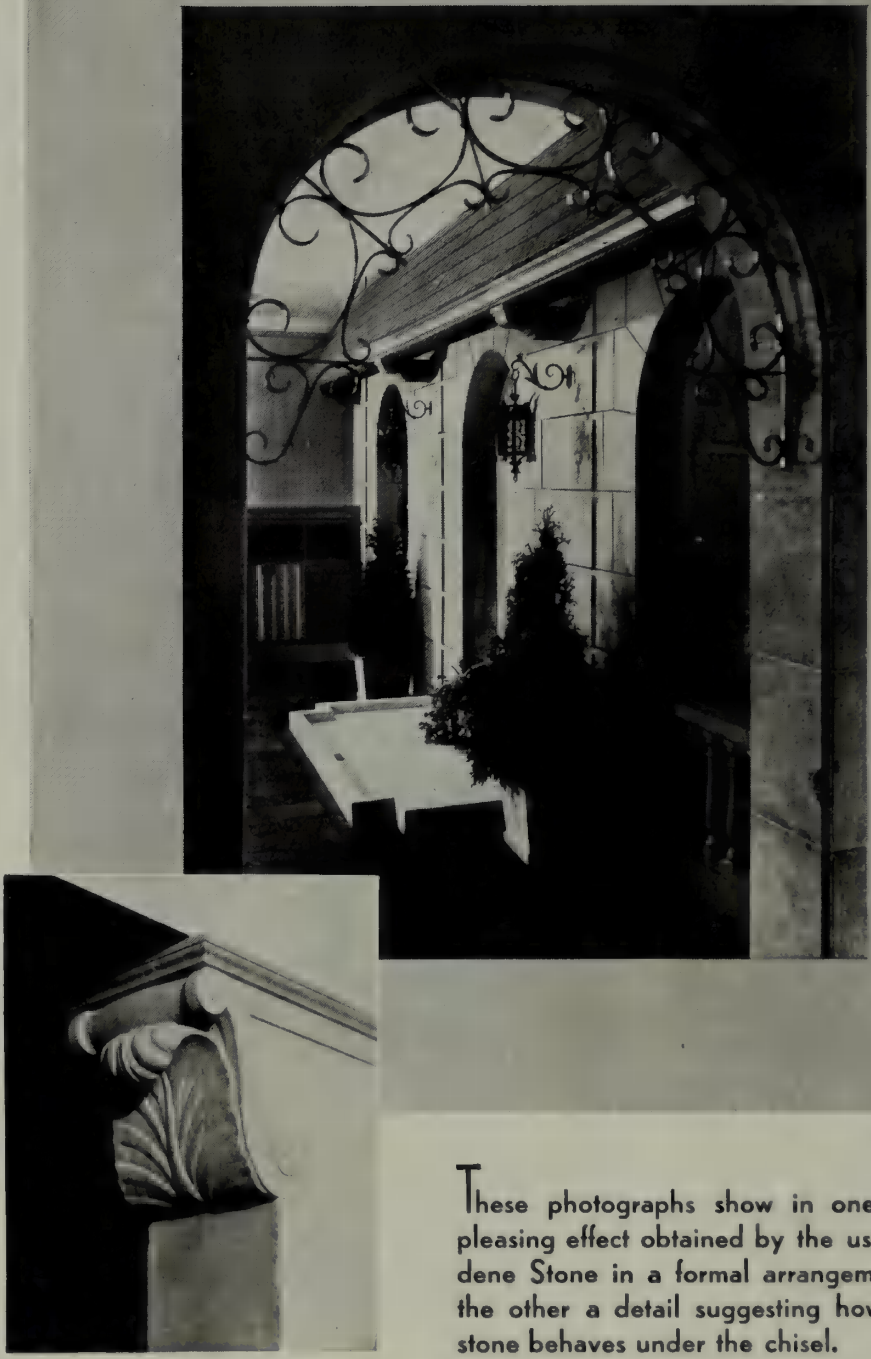
MEMPHIS — TENNESSEE

*CELLized wood floor blocks are guaranteed by *CELLized Oak Flooring Inc. when laid by Licensed Flooring Contractors. The names of those licensed to use this label in your locality will be supplied upon request.

LICENSED
*CELLized Oak Flooring INC.
FLOORING CONTRACTORS

**CELLized planks and strip flooring are obtainable through licensees of *CELLized Oak Flooring Inc.*

JOHNS-MANVILLE JM PRODUCTS



These photographs show in one case the pleasing effect obtained by the use of Floridene Stone in a formal arrangement and in the other a detail suggesting how well the stone behaves under the chisel.

Johns-Manville
FLORIDENE
STONE

JOHNS-MANVILLE
JM
PRODUCTS

There are many possibilities in this warm, interesting stone . . . quarried in Florida

ALL of those elements which you seek in a stone we believe you will find in Floridene Stone. It has a pleasing warmth of color. Its texture is interesting. Tests of the most exacting nature prove its resistance to weather, and that it will withstand pressures far in excess of any ever encountered in building. Yet with these advantages Floridene Stone possesses the thoroughly practical feature of being easy to work whether it be simple cutting, or elaborate carving. Furthermore, Floridene Stone has a grain which allows of fine detail wherever decorative schemes calling for such treatment are desired.

We contribute to design and performance

Floridene Stone is quarried in Florida, near Bradenton. It has been used in local projects for some years. In offering this interesting stone to architects, Johns-Manville is carrying out its established policy of providing materials that offer genuine advantages to every man interested in high grade building construction.

In matters which affect the design of a building every architect is vitally interested. Products which have relation to the final appearance of the design are as important to the architect as pigments and canvas to the painter. Of less esthetic interest, but of equal importance in relation to the whole project are many unseen elements. The products of Johns-Manville are found in both groups.

We seek to meet you on your own ground

The Architectural Service Department of Johns-Manville Corporation is a division organized and conducted for the express purpose of this cooperation with architects. J-M Architectural Service representatives are chosen because of their ability and experience along architectural and construction lines. It is their aim to be of all possible assistance to architects who are concerned with any of the many Johns-Manville products which are used in the construction or equipment of buildings. We feel that the men of our Architectural Service have an experience which enables them to be valuable to many architects.

JOHNS-MANVILLE
JM
PRODUCTS

FOR THE BUILDING INDUSTRY

Acoustical Materials
Home Insulation
Asbestocel Pipe Insulations
Insulating Board
Transite
Asbestos and Asphalt Shingles
Tile Flooring
Built-Up Roofs
Floridene Stone

Johns-Manville
CORPORATION
New York Chicago Cleveland
San Francisco Toronto

ARCHITECTS
HUBBEL & BENNES
CLEVELAND, OHIO.

OHIO BELL TELEPHONE BUILDING
CLEVELAND, OHIO.

PLUMBING CONTRACTERS
SMITH & OBY CO.
CLEVELAND, OHIO.

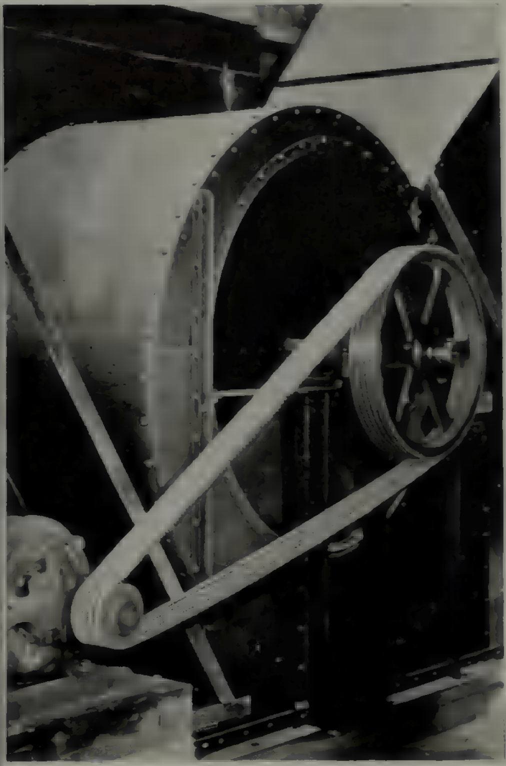
THE BELL TELEPHONE COMPANY, with its world-wide experience in real estate matters, put "Bridgeport" pipe in its magnificent new Cleveland headquarters building. In meeting the exact requirements for this multi-million dollar structure, the Bridgeport Brass Company uncovered added evidence that "big business" has Confidence in its products and service.

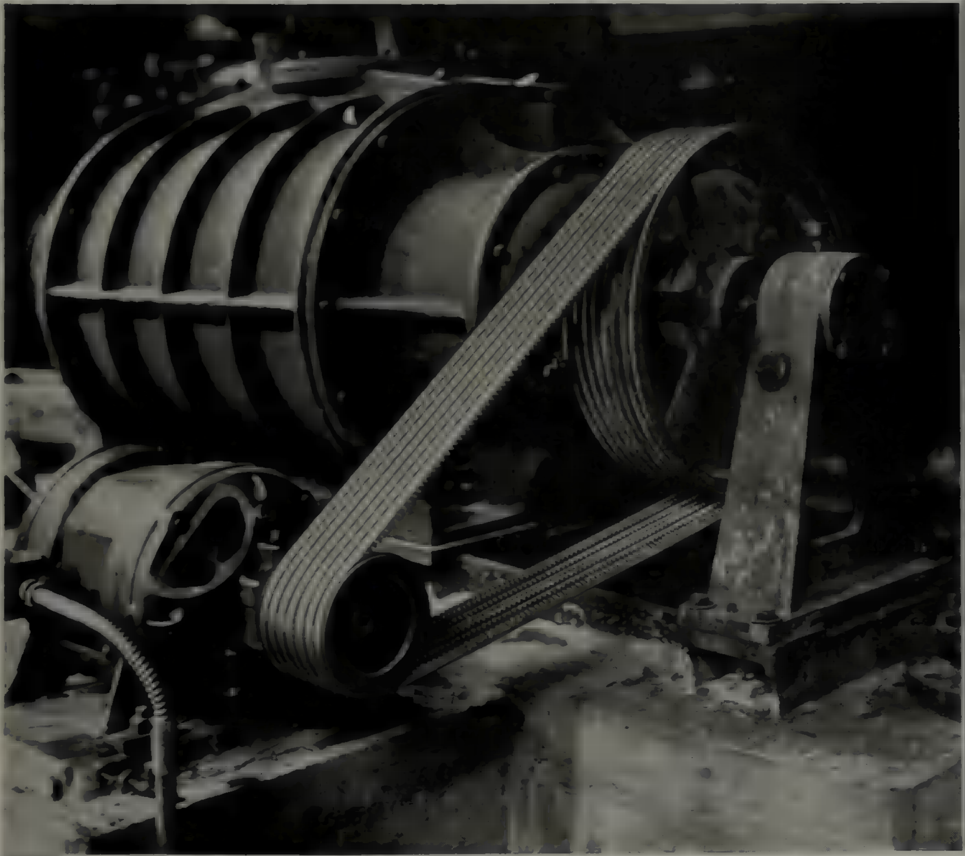
PLUMRITE BRASS PIPE

BRIDGEPORT BRASS COMPANY *Manufacturers* - General Offices, **BRIDGEPORT, CONN.**

Now a quiet vibrationless drive *for building equipment machinery*

Now you can have silent, clean, efficient and long lived power transmission for ventilating systems, pumps, conveyors, and similar machinery. Dayton Cog-Belt Drives meet your power transmission requirements in a new and revolutionary way. They offer advantages found in no other type of drive.





1 Minimum space required . . . smaller pulleys . . . extremely short center-to-center distances possible without use of idlers.

2 Elimination of vibration. No vibration transmitted between driving and driven machines.

3 Rugged, Quiet, Clean . . . no oil or grease to leak and collect dust . . . not affected by moisture.

4 Less adjustment and maintenance. Fewer belts required . . . longer life . . . no lubrication necessary . . . no dressing.

5 Easy on Bearings. Greater gripping power permits less tension.

6 Smooth starting and running . . . through seating action of belts in grooves.

7 Positive Speed . . . greater gripping power . . . exact speed ratios.

But see for yourself. Get all the facts. Send for a catalog and sample section of the Dayton Cog-Belt today.

THE DAYTON RUBBER MFG. CO.
Dayton, Ohio
Manufacturers of Dayton De Luxe Thorobred Balloon Tires and Fan-Belts

Dayton

COG-BELT DRIVES

The Dayton Rubber Mfg. Co.
Dept. No. J-1, Dayton, Ohio.

Gentlemen: Send me a free sample section of the Dayton Cog-Belt and a Dayton Cog-Belt Catalog.

Name . . . .

Position . . . .

Firm Name . . . .

Firm Address . . . .

Actual pages from DUPLEX-A-LITE Sales History

Over and over again—

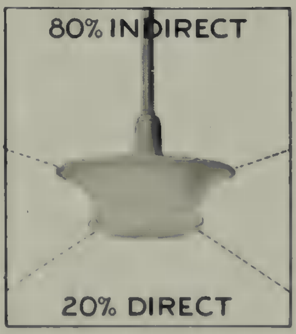
these architects chose 'Duplex-a-lites!

WAY BACK IN 1916, a nationally known architectural concern*, famous for designing mammoth buildings, specified 1,000 Duplex-a-lites for a large hotel in Cleveland.

A few years later, they were responsible for the installation of 4,800 units in a great bank and office building in the same city.

Then these architects designed a magnificent office building on Michigan Boulevard, Chicago, where they specified 3,000 Duplex-a-lites. Just about this time they had some 800 units put in another building in that city.

Two years ago, the tallest building in Cleveland—and one of the tallest in the world—done by them, was lighted with 3,500 Duplex-a-lites. This year another building, next door, part of a surrounding group, is taking 2,000 more of these fixtures. And right now this architectural concern is supervising the erection of a monumental Pittsburgh building—to be equipped with 2,200 Duplex-a-lites.



Time and again, similar incidents prove that building owners and tenants notice and approve Duplex-a-lite with positive enthusiasm. Its balanced blend of direct and indirect illumination is restful and pleasant because it is free from glare or sharp shadows. Duplex-a-lite also has definite practical advantages.

The single large lamp in a Duplex-a-lite *costs less* to buy and maintain, and *gives more light* than any group of small lamps of equal total wattage. Write for our booklet which shows how Duplex-a-lite can be dressed to harmonize with its surroundings.

Name on request.

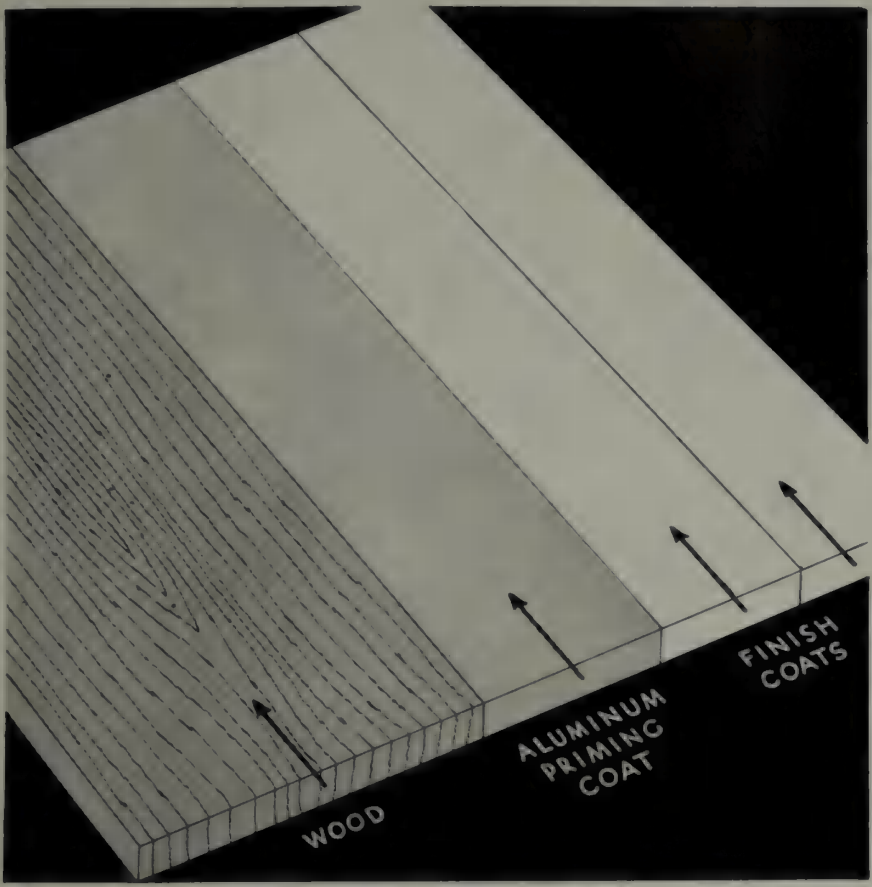
DUPLEX-A-LITE

DIVISION *of The* MILLER COMPANY
MERIDEN, CONNECTICUT

SEE OUR CATALOG IN "SWEETS" *and when you come to New York, visit our permanent Duplex-a-lite Exhibit in the Scientific American Building, 24 West 40th*

"Pioneers in Good Lighting Since 1844"

THE COAT OF METAL PROTECTION



KEEPS MOISTURE OUT

Moisture penetration is the cause of many paint failures on wooden surfaces. The moisture content in wood changes with the atmosphere. Wood swells, contracts. Paint film is stretched. It cracks, peels off.

One way to prevent this cracking and peeling of outer coats is to protect the wood with aluminum paint—a moisture-resisting priming coat.

In tests at U. S. Forest Products Laboratory, aluminum paint has shown superior moisture proofing efficiency. It retains its excellent moisture proofing qualities even under severe exposure.

Aluminum paint shuts moisture out because it "leafs". Minute flakes of pure aluminum that form the pigment overlap, layer on layer. A coat of metal protection is formed that defies moisture.

The best aluminum paint is made of Alcoa Albron Powder. It costs no more than any other good paint. It is easy to spread and hides better than any other paint.

May we send you the booklet "Aluminum Paint, the Coat of Metal Protection" and "Specifications for Aluminum Paint". They give complete information on the many uses of this unique paint.

ALUMINUM COMPANY *of* AMERICA
2467 Oliver Building; PITTSBURGH, PA.
Offices in 19 Principal American Cities

ALCOA ALBRON
POWDER FOR
ALUMINUM PAINT

Vertical Transportation *for* Office Buildings

The Otis Signal Control Elevator is the outstanding development in Vertical Transportation today

YEARS of research work in the world's largest elevator organization have culminated in the development of this finer, more efficient elevator, which is giving greater service, more speed and comfort with the same inherent Otis features of assured safety and freedom from excessive repairs and costly maintenance.

For office buildings of smaller size the long-established standard Otis Car Switch Control Elevator provides maximum service for buildings which do not require the highest speed, intensive service.

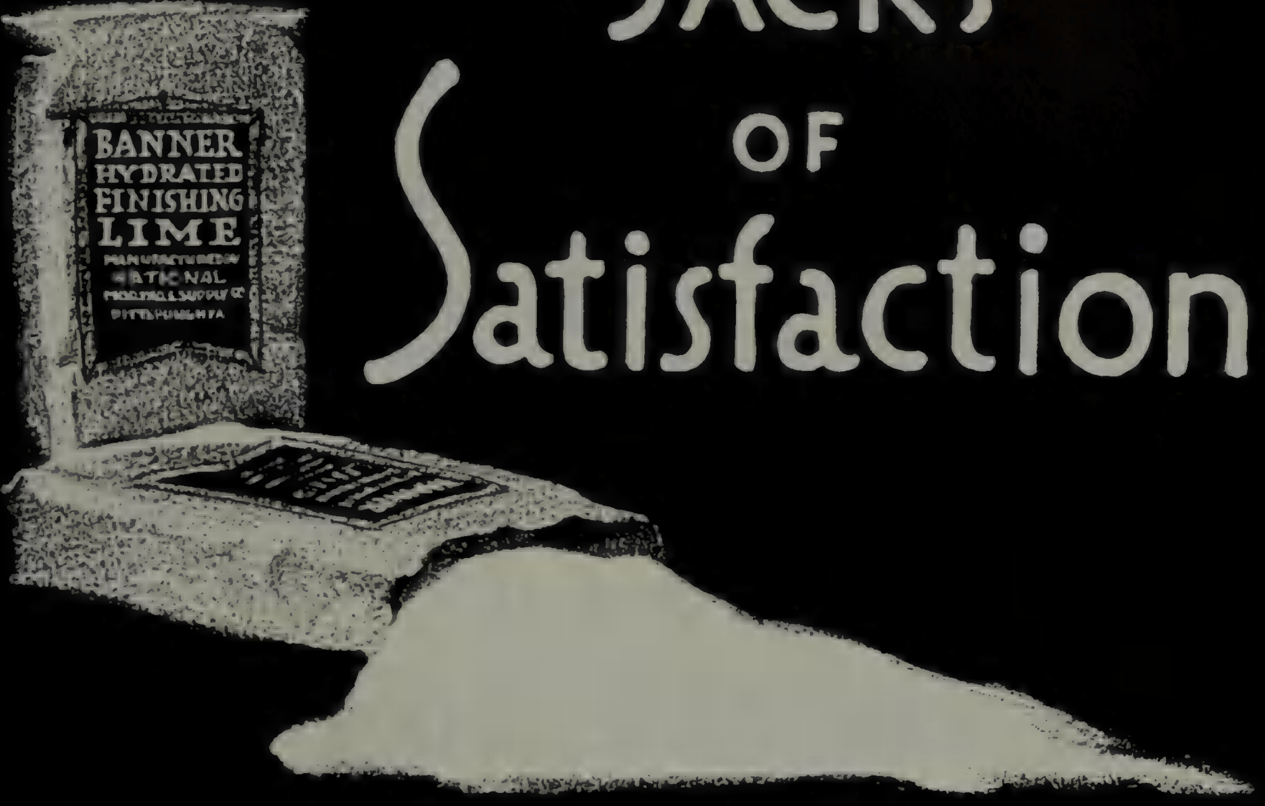
Otis Engineers are at the service of architects and builders without obligation.

A telephone call to our nearest office will receive immediate attention

OTIS ELEVATOR COMPANY

OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD

SACKS OF Satisfaction



Banner Finish Lime is a proven, dependably-good product. Since 1907 its use on important buildings and fine residences has established its quality in the minds of architects, contractors and dealers. Made primarily for whitecoating or finishing, the necessary extra quality shows up in textures, base coat plaster, mortar. Exclusive manufacturing methods applied to famous Ohio dolomite, together with genuine interest in serving well; these things, in reality, fill Banner sacks with satisfaction.

NATIONAL MORTAR & SUPPLY CO., PITTSBURGH
CHARTER MEMBER FINISHING LIME ASSOCIATION OF OHIO

Banner Lime
FAMOUS OHIO FINISH

Keep Dr. Jekyll *and* Mr. Hyde out of the blackboard picture!

IS the "sample" of blackboard you examine Dr. Jekyll . . . and the finally delivered product Mr. Hyde? Are you sold through a sample that merits your consideration only to find that the finally delivered product somehow has changed?

Every sample of Sterling Lifelong Blackboard is a *stock* sample . . . and behind every foot a pledge of satisfaction made by this reliable 47 year old concern.

Sterling is a better blackboard . . . a quality product scientifically produced to perform exactly as the educator expects and desires. Investigate its advantages over *any other blackboard.* Address Department S150 for 15 pages of plans, elevations, and detailed specifications for installations of *any* blackboard — A. I. A. File No. 35-b-12. Prepared for you by architects. Free for the asking — with a sample of Sterling, too.

Sterling
Lifelong
Blackboard

WEBER COSTELLO COMPANY

Chicago Heights, Illinois

MAKERS OF
Sterling Lifelong
Blackboard – Globes

TIME TESTED
W.C.
SCHOOL SUPPLIES

Old Reliable Hylo-plate – Erasers
Maps – Crayon

55 Distributor Warehouses Assure You Immediate Service

King ALFRED killed two birds with one stone, but—

KING ALFRED'S famous candle combined a method of marking the passage of time with a very practical "tallow dip" emergency lighting system—foreshadowing our own personal activities, which include the manufacture of

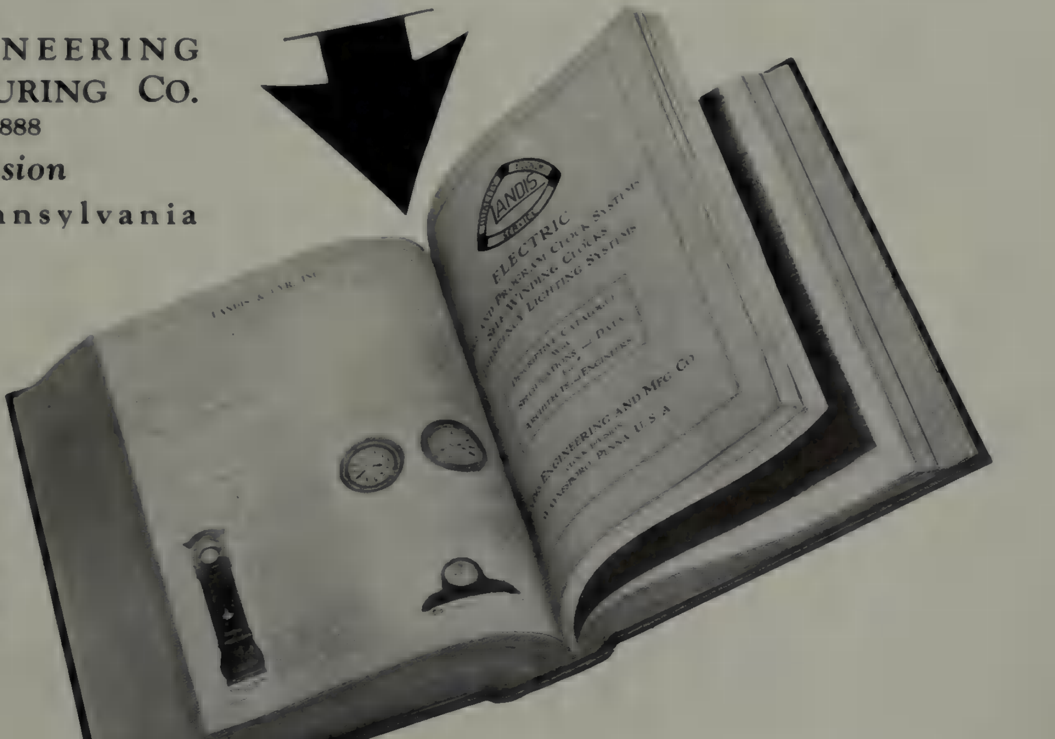
ELECTRIC TIME AND PROGRAM CLOCK SYSTEMS
ELECTRIC SELF-WINDING CLOCKS
ELECTRIC EMERGENCY LIGHTING SYSTEMS

King Alfred killed two birds with one stone, but these are days of specialization and we cannot follow him too closely—except that our emergency lighting systems include an electrically operated clock to keep the battery active and control the functioning of the system.

The present Landis line is a development of nearly half a century's intensive study and effort. We have aimed at simplicity in number of parts and in operation, at ruggedness and dependability in functioning, and at economy in both first and final cost. Landis systems are used everywhere where a first class product is appreciated, and we have thousands of installations throughout every state in the Union and in many foreign countries.

In the interest of architects and engineers, we have placed in the new 4-volume edition of Sweet's Architectural Catalogues, our complete descriptive catalogue with specifications and all needed data. It will be to your interest to consult it on all jobs that call for this particular line of equipment.

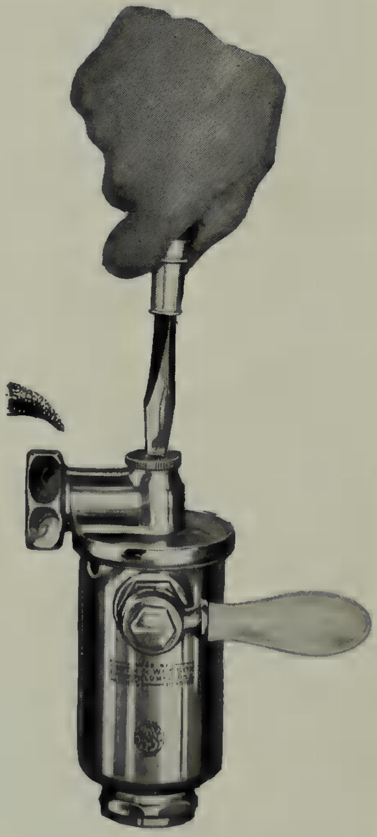
LANDIS ENGINEERING
***and* MANUFACTURING CO.**
Established 1888
Clock Division
Waynesboro, Pennsylvania



TURN TO SWEET'S

Volume D, Pages 5413 to 5427, for our complete descriptive catalogue of electrically operated clocks, Pages 5428, 5429 for emergency lighting systems.

THIS VALVE HAS EXTERNAL ADJUSTMENT



THE new Smith & Wesson Flush Valve has been designed with a view to give a variable volume of water under different conditions which may arise.

By turning the adjustment screw clockwise, more water is allowed to pass through the valve, and by turning the screw counter clockwise less water is allowed to pass through the valve. A full turn of the adjusting screw in either direction gives one gallon, more or less.

This feature should commend itself to the plumber, due to the fact that it can be done so quickly and easily without shutting off the water, and shows the thoroughness with which Smith & Wesson have studied flush valve requirements.

For Further Information Write

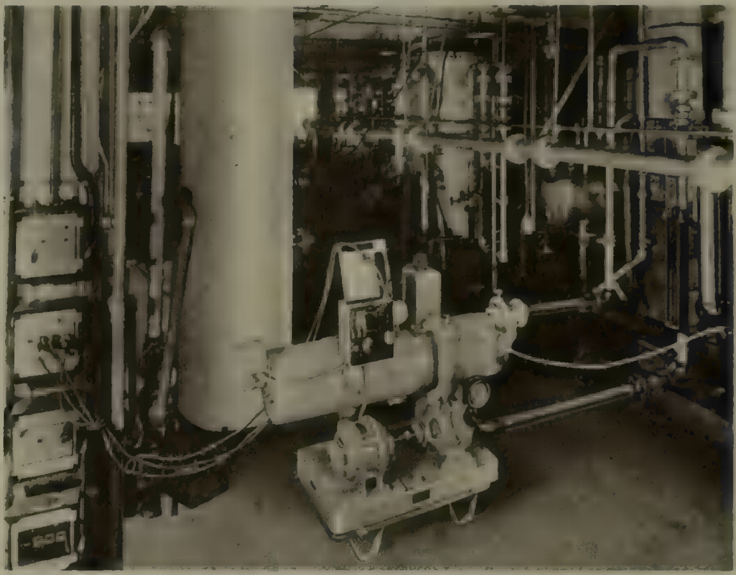
SMITH & WESSON

FLUSH VALVE DIVISION
SPRINGFIELD, MASSACHUSETTS

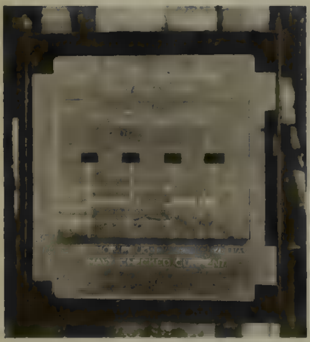
Stretching square foot pump ratings will not fill the bill

Combined Air and Water Capacity determines the amount of radiation a heating pump can serve

ALTHOUGH it is usually possible to calculate within close limits the volume of condensation to be removed from a steam heating system, the quantity of air to be exhausted may vary greatly. The degree of tightness, the efficiency of radiator traps, the temperature of the condensate, the cooling effect of the return piping, the use of lifts, the relative quantity of fan surface installed, the vacuum to be maintained, the necessity of introducing high temperature water into return piping near the pump, and the use of long runs to the radiator, are certain to vary.



GENERAL VIEW OF NASH TEST PLANT



TYPE OF SWITCHBOARD PLUG-IN BOX IN NASH TEST PLANT WHICH FURNISHES ELECTRIC CURRENT OF ANY PHASE, VOLTAGE AND FREQUENCY

No wonder the volumes of condensation and air to be removed from two such systems having the same radiation surface may differ greatly!

So, the determining factor in recommending the correct size of vacuum pump for a given heating system is the maximum quantity of air the pump will ever be called upon to remove from the system.

CAPACITIES OF JENNINGS VACUUM HEATING PUMPS

Pump Size	Equivalent Direct Radiation Square Feet	Water Capacity G P M	Air Capacity Cu Ft Per Min	Orifice Diameter Inches	MOTOR HORSEPOWER			
					[illegible] Lbs	20 Lbs	30 Lbs	[illegible] Lbs
T	2,500	4	3	7/64	1/3	1/2	1	1 1/2
U	5,000	9	3	7/64	1/3	1/2	1	1 1/2
V	10,000	14	6	5/32	1	1	1 1/2	2
B	16,000	22	9	3/16	1 1/2	2	3	5
C	26,000	35	15	1/4	2	3	5	5
D	40,000	60	19	11/32	3	5	5	7 1/2
E	65,000	90	34	3/8	5	5	7 1/2	10
F	100,000	140	50	7/16	7 1/2	10	15	15
*G	150,000	200	102	9/16 & 5/16	10	15	UPON REQUEST	
*H	300,000	400	171	2-7/16 & 1-9/16		UPON REQUEST		

* The last two sizes are not of the manifold type

Nash Engineers have recognized these facts for years. They have always rated Jennings Return Line Vacuum Steam Heating Pumps on the basis of their combined water and air capacity.

TYPES OF VENTURI METER AND VACUUM MANOMETER USED IN TESTING JENNINGS PUMPS

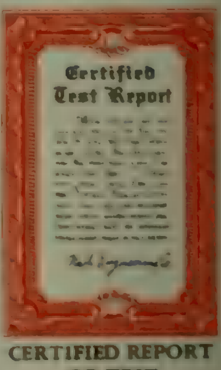
Jennings Pump Capacities Are Determined by Actual Tests

This combined capacity is definitely established before each pump is shipped from the factory. Exhaustive tests conducted in a completely equipped laboratory accurately determine the volume of water in g.p.m. that the pump can remove from the receiving tank under a prescribed vacuum and deliver against a specified discharge pressure. Simultaneously, a calibrated orifice checks the number of cu. ft. per min. of air that the pump can withdraw from the receiving tank and discharge into the atmosphere. A certified report of these tests is furnished to the customer on request.

STANDARD TEST ORIFICE

Ratings Are Reliable Under Varying Conditions

Jennings Vacuum Heating Pump ratings are reliable. They are based on actual performance. A Jennings Pump, with the capacity given in the table, can be depended on to serve *any* reasonably well installed system, for which it is recommended, for the life of the building.



Certified Test Report

CERTIFIED REPORT OF TEST

Jennings Pumps

NASH ENGINEERING CO.
SOUTH NORWALK, CONN., U. S. A.

TONCAN

Better building construction *with* rust-resisting TONCAN IRON

ARCHITECTS of today are building for the future. Maintenance costs, and repair bills are items of utmost importance to them.

That is why so many of them habitually specify Toncan Copper Mo-lyb-den-um Iron for all exposed metal parts such as gutters, canopies, flashings, sky-lights, cornices, window frames, sash, etc.

Also for those hidden parts that so quickly can send repair bills sky high. Metal lath, ventilating system, and scores of other unseen parts of great buildings are genuinely economical when fashioned from Toncan Iron.

No other metal has just the properties of Toncan. No other ferrous metal puts up so gallant a fight against corrosion and rust.

For Toncan is an alloy, made from scientifically combined pure iron, copper and molybdenum, many times more resistant to rust than ordinary metal.

If our new book on sheet iron is not in your files, we will gladly send it on request. It contains practical information of value to every architect. You should have it.

REG. U.S. PAT. OFF.
TONCAN
COPPER
Mo-lyb-den-um
IRON

CENTRAL ALLOY STEEL CORPORATION
Massillon and Canton, Ohio

WORLD'S LARGEST AND MOST HIGHLY SPECIALIZED ALLOY STEEL PRODUCERS

View of Boston
1788

Callender Sculp. State Street BOSTON

The Smoke

marks

Paul Revere's Foundry

Above print of Boston was engraved in 1788. The eloquent cloud of smoke was from Paul Revere's foundry.

Six years later, Revere, the midnight horseman, began that stirring expansion which broke European copper and brass monopoly and established an American industry.

✣

AFTER A CENTURY AND A QUARTER

But even Revere's dream did not soar to the picture of today. His original company, handed down to son, grandson, great-grandson, was first merged into the Taunton-New Bedford Copper Company, and last year became the cornerstone of a nation-wide consolidation.

In it are the two largest copper mills of the country, Baltimore Copper Mills, founded 1814, and the new continuous rolling mill, completed in 1929 by the Rome Brass & Copper Company. With these pioneers of the East are joined Michigan Copper & Brass Company, Higgins Brass & Manufacturing Company, plants that grew with Detroit, and Dallas Brass & Copper Company, ultra-modern Chicago plant serving industrial West.

✣

REVERE IN 1929

These six divisions, operating twenty-five percent of the country's copper, brass and bronze rolling-mill facilities, perpetuate the name of Paul Revere in the industry and in the very business which he founded: REVERE COPPER AND BRASS INCORPORATED.

Revere Copper *and* Brass
INCORPORATED

Divisions: Baltimore *Copper Mills, Baltimore, Md.* . . Dallas *Brass & Copper Co., Chicago, Ill.* . . Higgins *Brass & Manufacturing Co., Detroit, Mich.* . . Michigan *Copper & Brass Co., Detroit, Mich.* . . Rome *Brass & Copper Co., Rome, N. Y.* . . Taunton-New Bedford *Copper Co., Taunton, Mass.*
GENERAL OFFICES: ROME, N. Y.

"A Charity Ball will be held here tomorrow night---and then the basketball tournament."

Municipal Auditorium-Gymnasium, Ft. Atkinson, Wis.
Law, Law & Potter, Architects

Any degree of resiliency can be secured by laying BLOXONEND over floor strips spaced to suit.

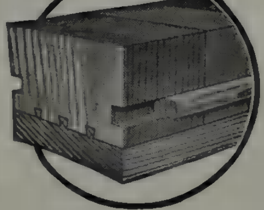
THIS Municipal Building is primarily a community gymnasium. When not so used, it accommodates important functions of a civic nature including auto shows, charity balls and lectures.

The Floor of BLOXONEND adds dignity and charm to the room and provides a surface that is admirably suited to each of these activities. BLOXONEND lasts a lifetime and stays smooth. It is quiet, safe, sliver and splinter proof, comfortable, resilient and fast, and is susceptible to any desired finish.

Nearly all prominent school architects specify BLOXONEND for gymnasiums and school shops. Write for sample and literature.

CARTER BLOXONEND FLOORING COMPANY
Kansas City, Missouri
Offices in Leading Cities—See Sweet's

BLOX-ON-END FLOORING



Bloxonend is made of Southern Pine with the tough end grain up. It comes in [illegible] ft. lengths with the blocks dovetailed endwise onto baseboards.

Lays Smooth
Stays Smooth

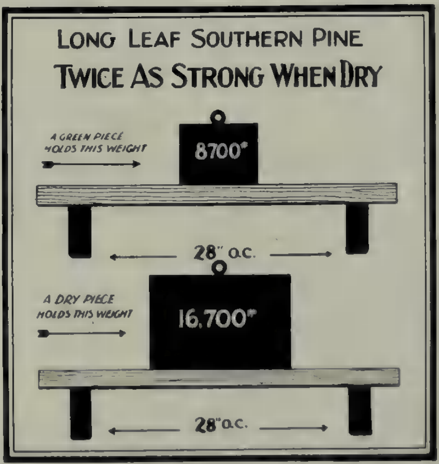
Where Strength is Needed.....

Only DRY Lumber will Do!

WHENEVER strength is needed in construction, make sure you use *dry* lumber . . . lumber bearing the official SPA grade-mark of the Southern Pine Association.

The strength of Southern Pine, as proven by governmental tests, (Department of Agriculture Bulletin 556), is doubled when it is dry. Drying also eliminates the danger of shrinkage, warping or checking. It renders the lumber less subject to decay, enables it to resist the damaging attacks of insects, and makes it ready for painting or any other treatment.

For these reasons moisture content limitations were incorporated in the grading rules of the Southern Pine Association.* Now, when you see the mark of SPA on a stick of lumber you know it is *dry*—double-strength lumber, reduced to the moisture content proper for the use for which it is intended.

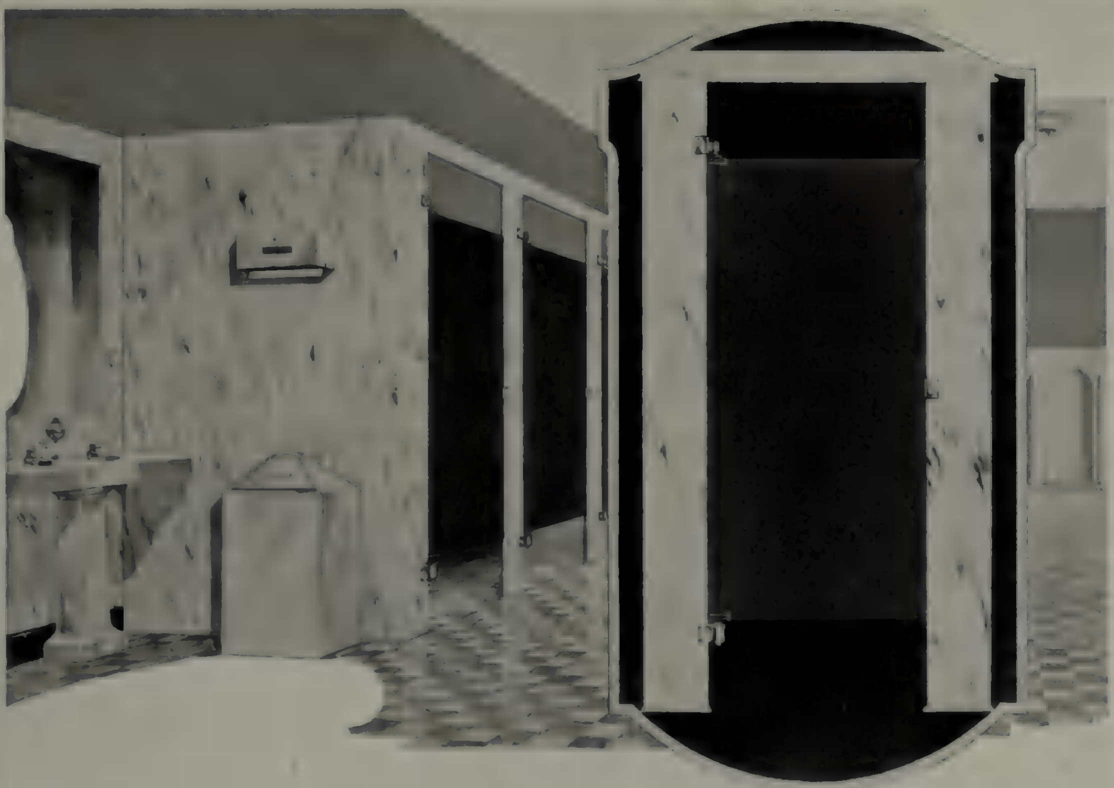


Demand the official mark of SPA. It is the sign of lumber safety. Protecting you and those whom you serve.

Southern Pine Association

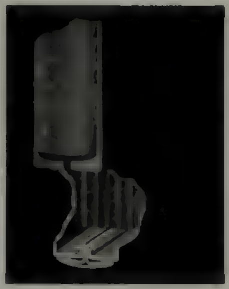
NEW ORLEANS

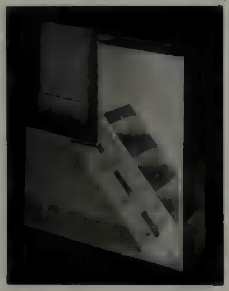
**Send for the Southern Pine Association Moisture Content booklet. . . . "And now, dry lumber."*



for Finer Buildings

New in conception and new in the service they afford to the architect, Weis METALUNITS are now announced as suggested equipment for the very finest of buildings. For beauty, for utility, or for economy and convenience, Weis METALUNITS offer every possible advantage.





A METALUNIT is a combination of a flush or panel type door and the exclusive Weis Universal Gravity Hinge Set with other necessary door hardware items as may be selected. These METALUNITS are presented for use on lavatory stall partitions of marble, vitrolite, glass, slate, alberene stone, terrazzo, and like materials. METALUNITS are manufactured of steel, aluminum alloy, Monel or Allegheny Metal, or bronze. Hardware is either chromium or nickel plated. METALUNITS are available in a variety of colors and finishes, and provide the architect with a means of creating new treatment of line, color and quality in toilet room design. The two small illustrations show in detail the construction of Weis METALUNIT doors of the flush and panel types. Both are unique in the strength and rigidity they afford, and both are exclusive Weis construction.

On request, we shall be glad to send a beautiful, colored folder in which METALUNITS are completely illustrated and described, and in which is contained much valuable detail for your files. . . Henry Weis Manufacturing Co., Inc., Elkhart, Indiana.

Turn now to the six-page insert in color in Sweet's, 1930 edition, following page B2388, for full information concerning Metalunits.

WEIS
METALUNIT
STALL DOOR AND HARDWARE

"The PRESIDENT is on the FORTY-SEVENTH FLOOR"

For modern top-floor offices are quiet . . . and comfortable

MODERN business executives require quiet and comfort. That is why so many locate their offices in top-floor suites. Here they are sure of quiet. And they know they will be comfortable . . . if the roof is adequately insulated.

So today's finest office buildings are protected at the roof by cork insulation—an ample thickness of Armstrong's Corkboard laid right on the roof deck, under the roofing. Heat leakage, in or out, is reduced to a negligible minimum. Top-floor offices are equally comfortable in August and December.

There is considerable saving in fuel bills, too. No longer the great outdoors to be heated. Cork is a barrier that effectually stops needless waste of heat. The further fact that Armstrong's Corkboard is made in thicknesses from 1½″ to 3″ inclusive and needs only a single laying operation, cuts labor costs.

Have you a roof insulation problem concerning office building, or apartment house, hotel, school, or similar building? We'll send you complete information, without obligation on your part. And we'll gladly place the services of our engineers at your disposal. Armstrong Cork & Insulation Company, 901 Concord Street, Lancaster, Pennsylvania.

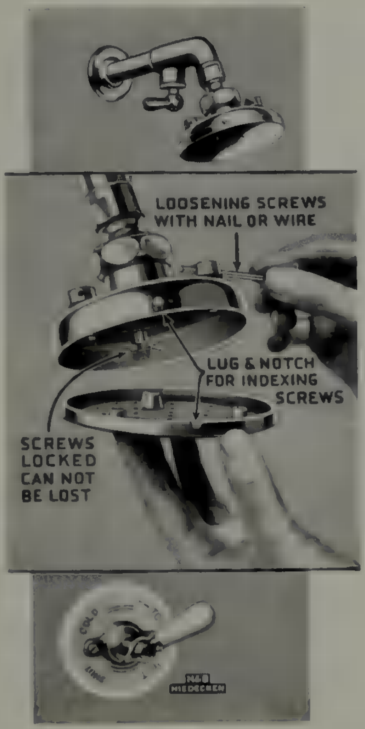
In modern buildings, corkboard insulation on the roof assures top-floor comfort all year 'round.

Armstrong's Corkboard Insulation

FOR THE ROOF OF EVERY BUILDING

NIEDECKEN

EASY-CLEAN SHOWER HEAD


LOOSENING SCREWS WITH NAIL OR WIRE
LUG & NOTCH FOR INDEXING SCREWS
SCREWS LOCKED CAN NOT BE LOST
H&B NIEDECKEN

As the descriptive illustration here shows, the Niedecken EASY-CLEAN Shower Head is a most practical convenience and substantial design: patented and exclusive.

Similarly, other patented Niedecken features furnish valuable advantages: the far advanced Niedecken Mixer and specially designed, positively leak-proof Shower Stall.

Write now for interesting details regarding Niedecken Bath Fixtures: features you ought to know about, for the buildings you design and the clients you serve.

New Idea Control Mixer

Patented mixer control, for shower or tub, provides a predetermined maximum hot water temperature. This prevents scalding, and also the waste of water as in ordinarily obtaining the correct water temperature. Also, one valve operates the mixer instead of two, as ordinarily used. Write now for details: acquaint yourself with this new bath advancement, for your own information and the benefit of your clients.

POSITIVELY LEAK-PROOF SHOWER STALL

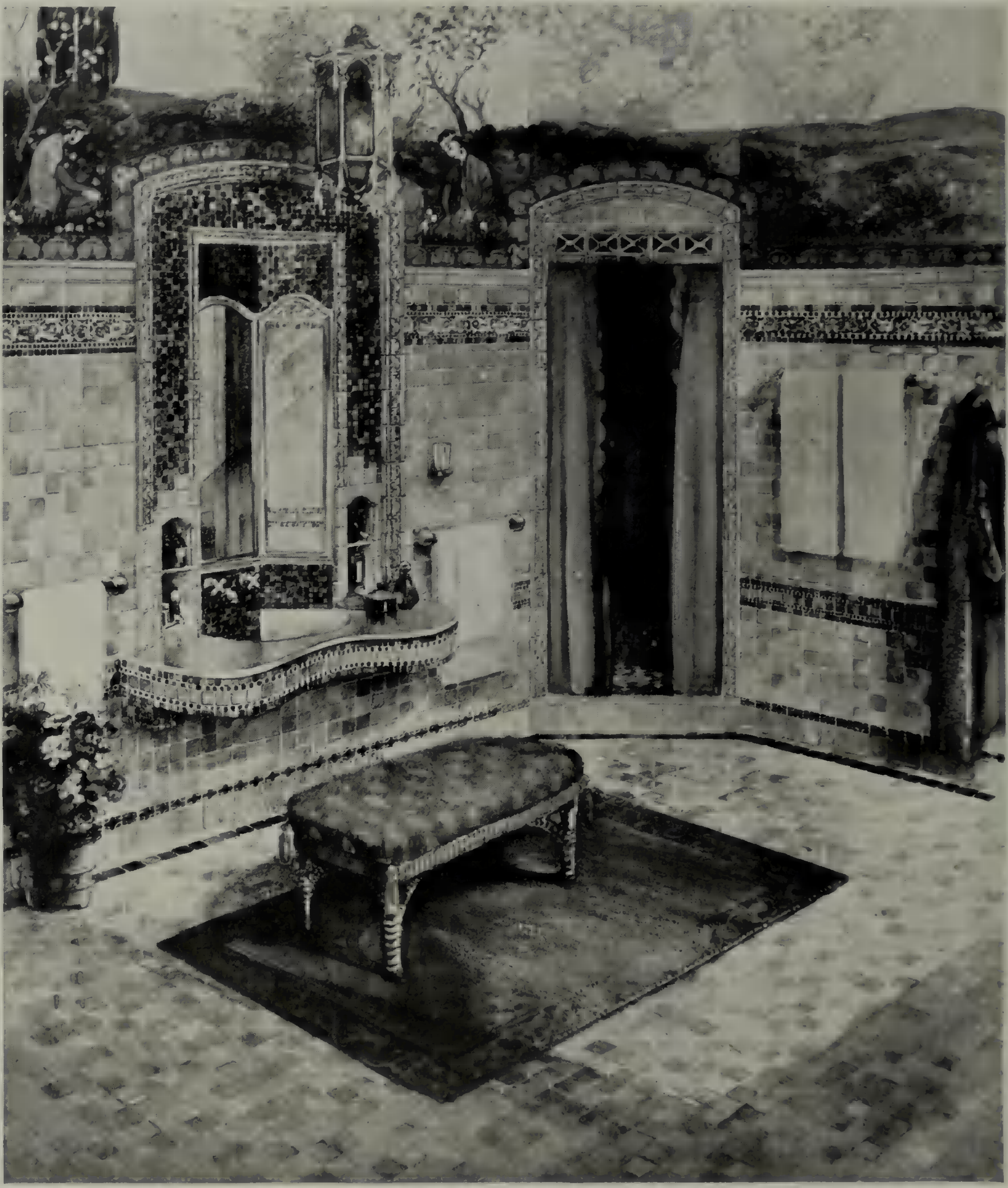
The Niedecken Shower Stall is made of a continuous ⅛ inch copper bearing steel—which, with the riser, is welded to the bottom. Thus it is positively leak proof for all time. Also, the Niedecken Shower Stall takes less room than others, and is low in first cost as well as upkeep. Write immediately for Niedecken literature—to have Niedecken in your files, and in your mind.

HOFFMANN & BILLINGS MFG. COMPANY

201 BECHER STREET . . . MILWAUKEE, WISCONSIN

BATCHELDER TILES

PATINA GLAZES



NO ARGUMENT is necessary for the use of tiles in the bathroom. They are taken for granted; no other medium combines economy with beauty to the same extent. They offer the extreme of simplicity on the one hand, and on the other the limit of enrichment in design and color. There is no substitute for the charm of kiln fired tiles with all their subtle variations of tone and texture.

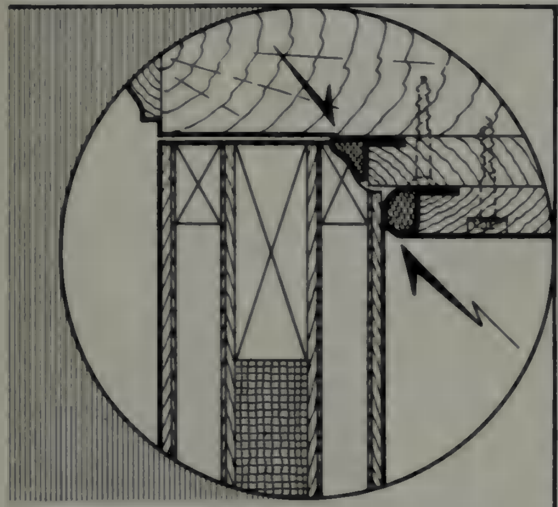
OUR PATINA GLAZE CATALOG IS MAILED ON REQUEST

BATCHELDER-WILSON COMPANY

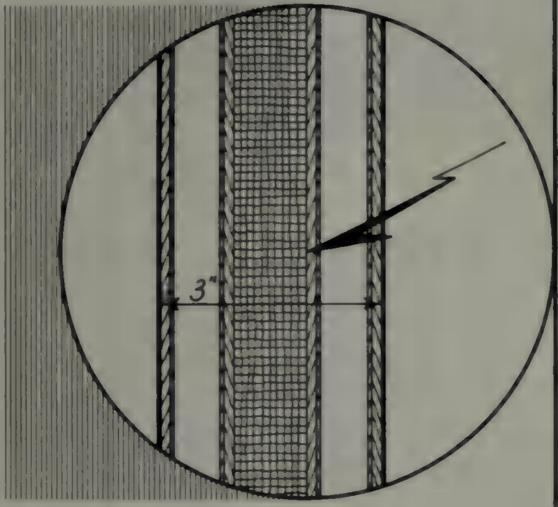
LOS ANGELES 2633 ARTESIAN ST.	SAN FRANCISCO 557 MARKET STREET	CHICAGO 38 SO. DEARBORN ST.	NEW YORK 101 PARK AVE.

41

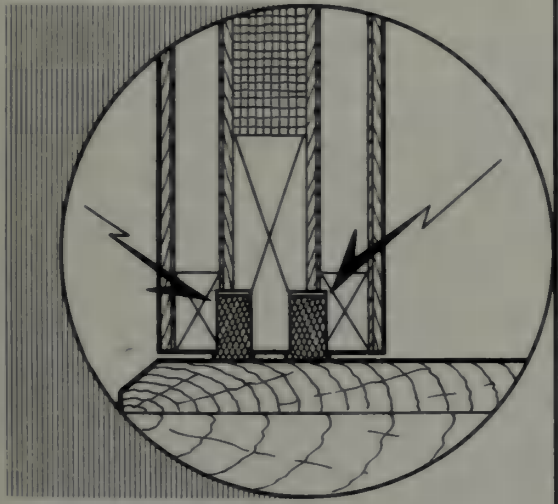
SCIENTIFICALLY BUILT



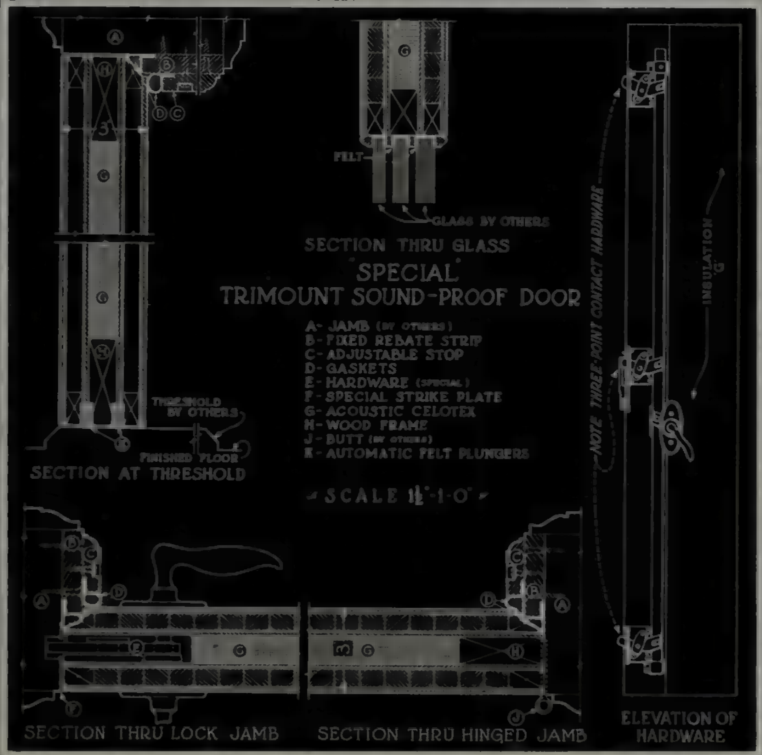
The head and side jambs are carefully sound insulated.



Inner core is packed with acoustic-celotex insulation.



Two self-adjusting felt plungers effectively seal opening full length of threshold.



3PCH ★

TO RETARD NOISE

A MODERN NECESSITY

With noise more prevalent than ever before, the desire for quiet is keenly sought. Through sheer necessity many arts and professions must be practiced in places unhampered by noise and to accomplish this condition the doors must function in equal capacity to other sound-proofing elements.

TRIMOUNT
SPECIAL
SOUND-PROOF DOORS

have been chosen by America's leading architects to serve in many types of buildings. They are strongly built and can be fire-proofed by Pyrono process. Prompt deliveries guaranteed. Write for quotations and descriptive circular.

THE COMPOUND & PYRONO DOOR COMPANY
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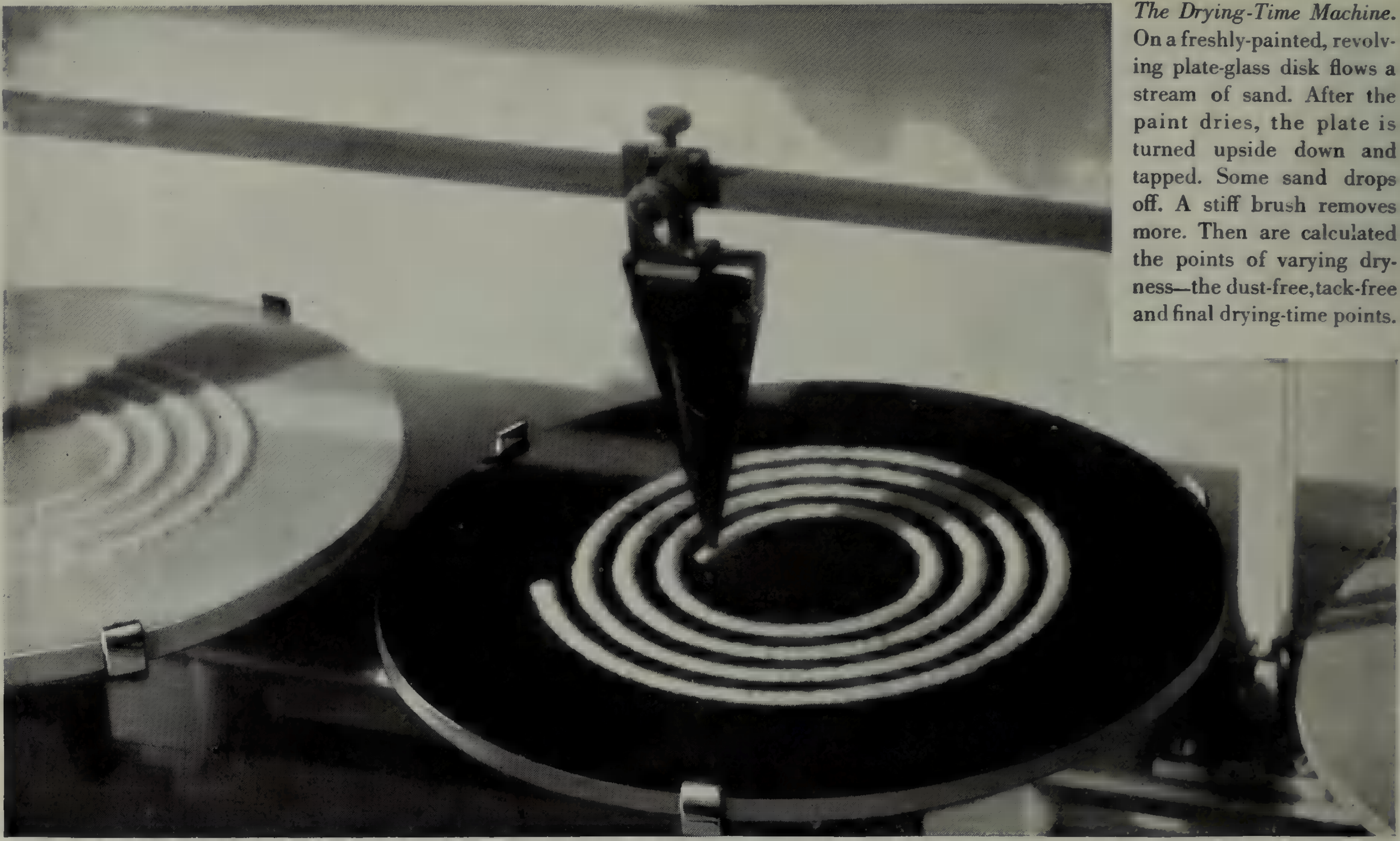
★ 3 POINT CONTACT HARDWARE

AMERICA'S OLDEST VENEER DOOR SPECIALISTS



The Drying-Time Machine. On a freshly-painted, revolving plate-glass disk flows a stream of sand. After the paint dries, the plate is turned upside down and tapped. Some sand drops off. A stiff brush removes more. Then are calculated the points of varying dryness—the dust-free, tack-free and final drying-time points.

WITH WHIRLING DISKS AND FLOWING SAND

WILL a paint or varnish film dry in the required time? How can you be sure that the drying time of each batch of paint or varnish will be uniform? There was a time when touching the film with the thumb or finger was the only known method to determine this. Today there is a more accurate way.

A whirling plate-glass disk, freshly painted or varnished, and rotated at a known speed . . . . some fine sand . . . . a few simple calculations . . . . and science measures exactly the drying time, whether in establishing a standard or in checking each batch of paint and varnish against that standard.

This is just one of the steps in pre-testing a du Pont paint or varnish . . . . in obtaining scientifically a finish to give unusually long service and to retain its beauty on the buildings you design. Pre-testing is the foundation upon which every du Pont finish is based. It is the reason why you can depend on du Pont's competence to manufacture products you can recommend with assurance of unvarying uniformity.

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We invite your inquiry about du Pont paints, varnishes, enamels, Duco, and other finishing products. Our architectural division is equipped to deal intelligently and quickly with special problems regarding application, decorative effects and technique.

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John and Donald Parkinson, Architects
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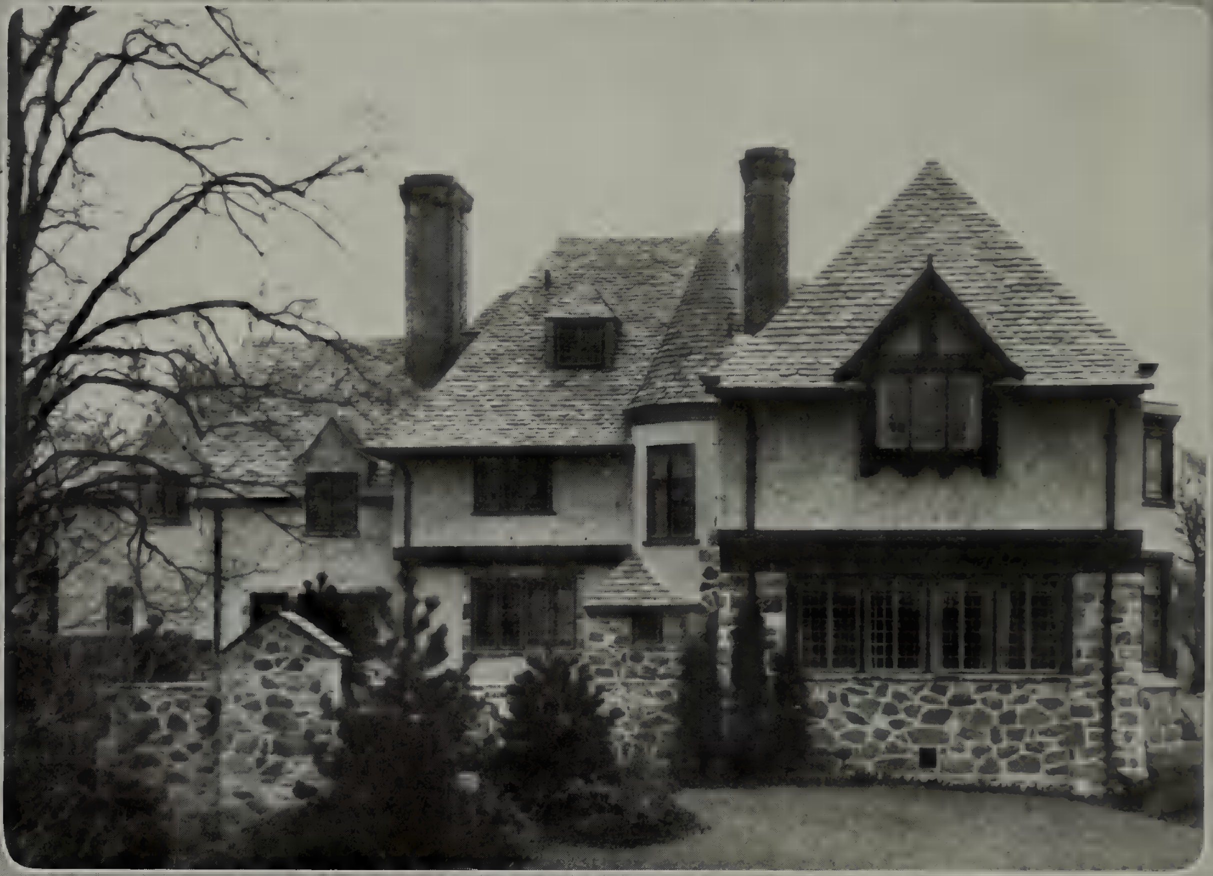
FOR the convenience of all architects Wright Rubber Tile is illustrated in thirty colors, with complete data, in Sweet's Architectural Catalog. This same information is also available to you in handy, file size pamphlet without cost or obligation. Write

Wright Rubber Products Co.
Racine, Wisconsin



Residence:
Sound Beach, Conn.

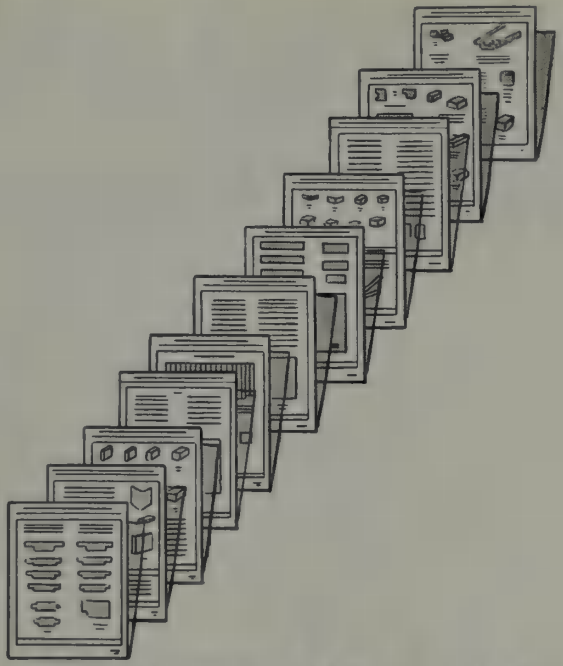
Julius Gregory,
Architect

This roof presents those striking irregularities which are so pleasing to the eye — provided the roofing material does not over-emphasize them. Here the subdued color tones of Tudor Stone have a softening effect, and harmonize perfectly with the architectural design.

Rising·and·Nelson·Slate·Company

WEST PAWLET, VERMONT
Architects' Service Department: 101 Park Avenue, New York City

CHICAGO DETROIT PHILADELPHIA BOSTON



A *Complete* NATCO ARCHITECTURAL CATALOGUE

ARRANGED *by* an architect *for* architects . . . giving just the information you want in just the form you want it—The Complete Natco Architectural Catalog appears on pages A559 to A608 of the 1930 Sweet's . . .

Specifications, shapes and sizes, numerous details, pertinent data, are conveniently presented.

When you're planning walls, floors, and fireproofing in any structure where fire safety, speedy erection, permanence, minimum weight, and all round economy are desirable features—*reach for Sweet's.* The complete Natco catalog will demonstrate that, whatever the Building Need, there's a Natco Structural Clay Tile to fill it.

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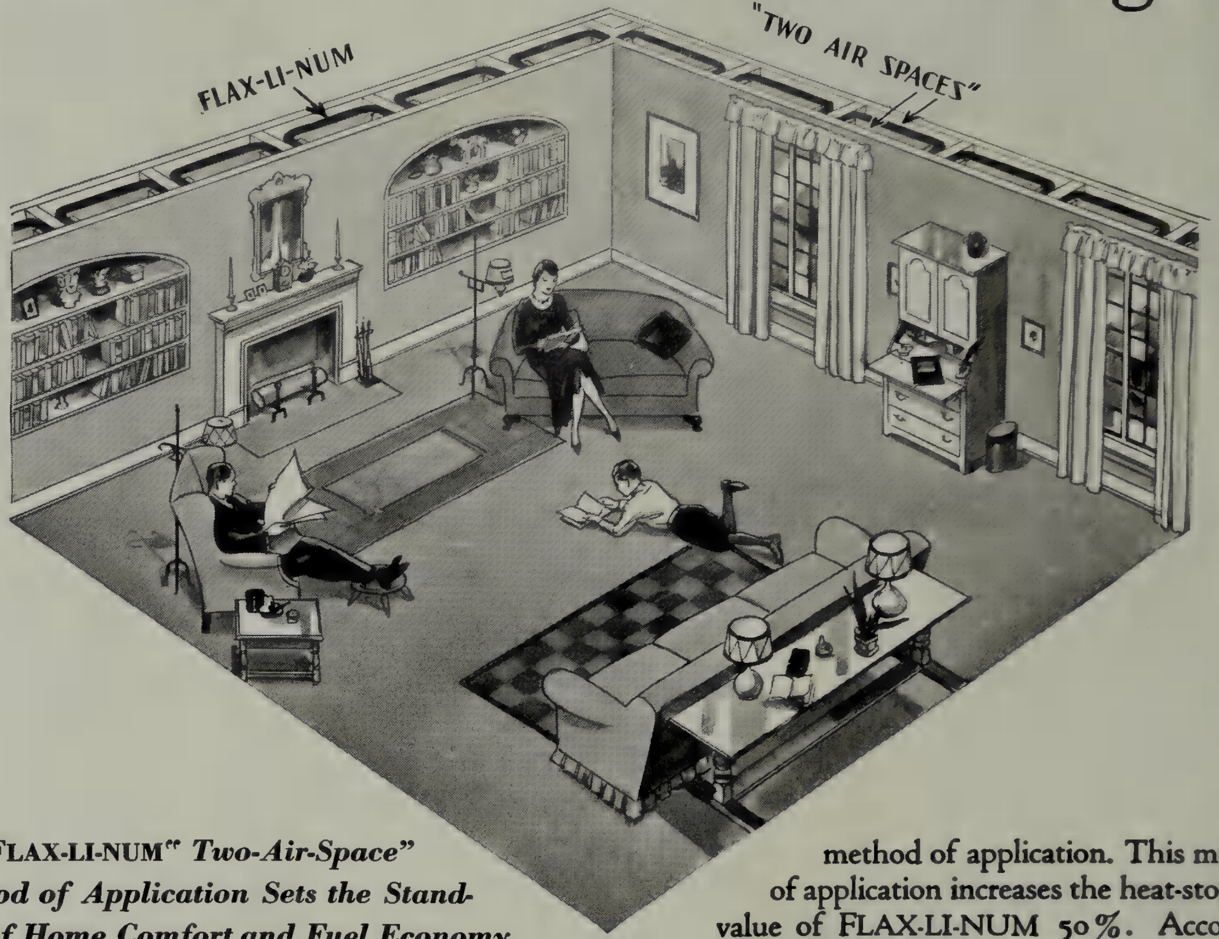
What other Insulating Material . . .
offers an Increase of 50% in insulating value



The* FLAX-LI-NUM" *Two-Air-Space" Method of Application Sets the Standard of Home Comfort and Fuel Economy

THE purpose behind FLAX-LI-NUM is to provide the greatest possible insulating value from an economical thickness of material . . . In other words, to make it possible to economically insulate a home in such a way that the owner will receive the *full benefits* of the insulating material.

Scientific research proved that this is only possible when the insulating material is designed for and used as insulating alone. To combine it with any other step in construction such as plaster base or sheathing means a loss of insulating value. Therefore, FLAX-LI-NUM is a single purpose material . . semi-rigid in form . . designed to be applied by the "two-air-space" method of application. This method of application increases the heat-stopping value of FLAX-LI-NUM 50%. According to the U. S. Bureau of Standards Letter Circular No. 227. "The addition of ½ inch layer of insulation in the middle of the air space in a frame wall is, therefore, the equivalent of adding about a ¾ inch layer at some other place in the wall". FLAX-LI-NUM is the outstanding, scientifically correct insulating material. It is made in uniform sheets of one-half inch and full one inch thickness. It is easily and quickly applied to the walls and ceilings or roof . . . and will stay in place permanently without cracking, tearing or in any way losing its original insulating value.

Full information covering recommended specifications is contained in the FLAX-LI-NUM Manual. We will be pleased to send you a copy for your files.

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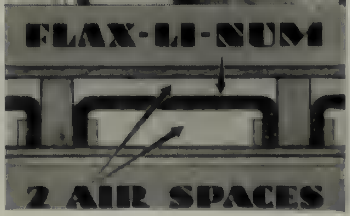
A CORRECT BUILDING INSULATION AND SOUND CONTROL MATERIAL



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St. Paul, Minnesota

Send me complete information about Flax-li-num. Also facts about the "two-air-space" method.

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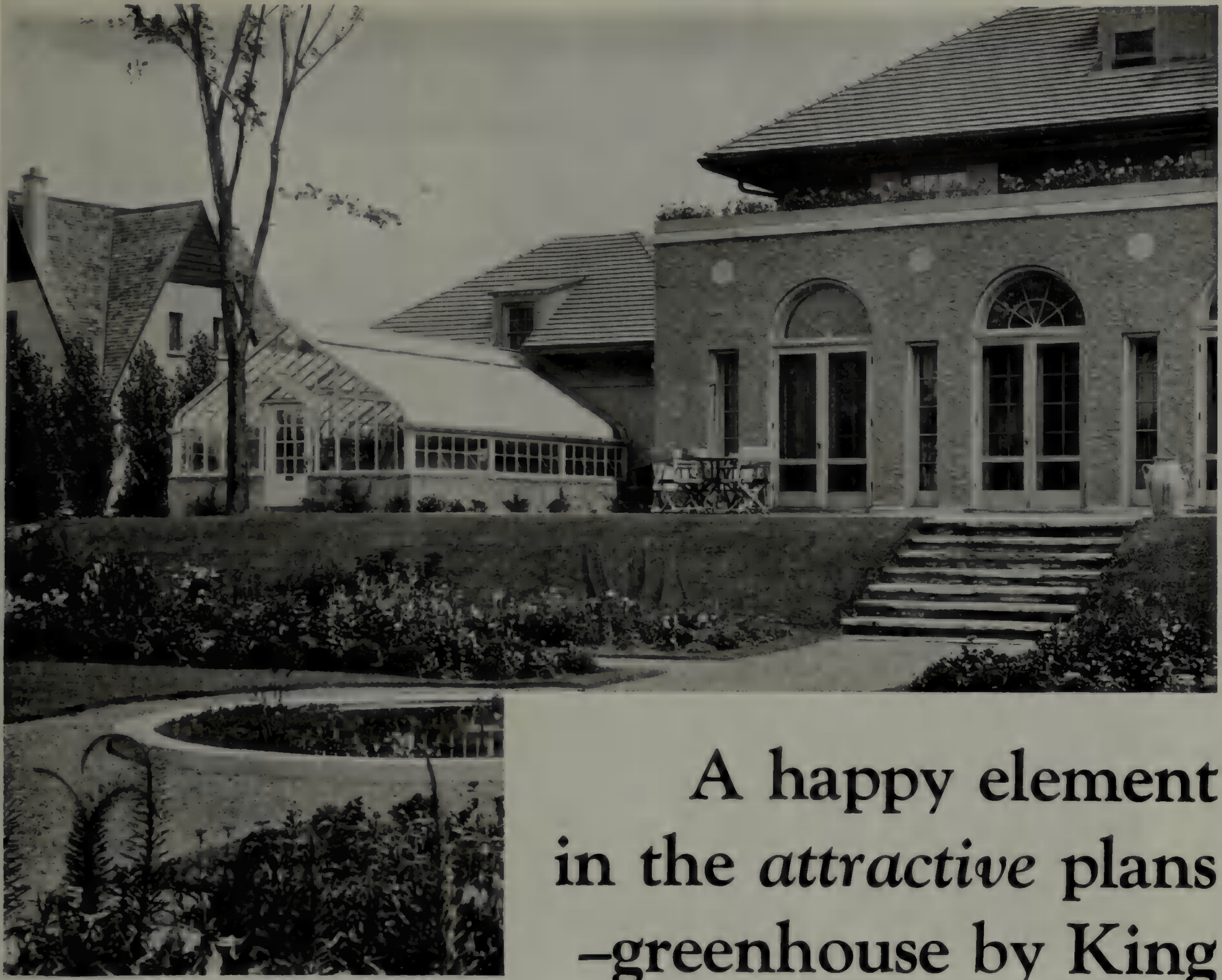

A happy element in the *attractive* plans –greenhouse by King

The greenhouse shown above is on the estate of Mr. Warren Curtis, Jr., at Lewiston Heights, N. Y.

It is difficult to define precisely that quality or feeling which a private greenhouse gives to the home setting. But it is there none-the-less, and architectural artists have always sensed it.

For a greenhouse, finely designed and located, becomes at once an integral part of the plans—indeed, a beautiful part highly prized by the prospective builder.

Needless to say, King Greenhouses have long been esteemed by the architectural profession. A study of the design and construction of Kings will tell you why . . . Would you like our Architect's Bureau to make suggestions and furnish rough sketches to help you on any of your present work?

Let us send you our new and helpful portfolio of plates showing attractive greenhouses we have constructed on the advice of other architects . . . Your letterhead will bring it promptly!

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PHILIPPINE LAMINEX 3X PANEL, RAISED MOLDINGS

LAMINEX — "WON'T WARP"

"MAHOGANY'S RIBBONS"

APARTMENT ENTRANCE, STOCK PHILIPPINE LAMINEX DOOR

BELLEVUE-STATEN APARTMENTS, OAKLAND

H. C. BAUMANN, ARCHITECT

From the Philippines has come a hardwood so beautiful and so practical, it is taking the entire country by storm. Those who love fine woods are completely won by the graceful slender ribbons of its grain, and by its chameleon adaptability to dozens of finishes. Those held to economy welcome its surprisingly low cost — particularly in stock millwork. Such stock doors and trim, known to the trade as "Philippine Laminex" (won't shrink, swell, or warp), are something on which you should be informed. For a copy of the Philippine Laminex manual, free, tear off this coupon and mail today.

THE WHEELER, OSGOOD COMPANY, DEPT. G-130, TACOMA, WASHINGTON: KINDLY SEND ME A MANUAL.

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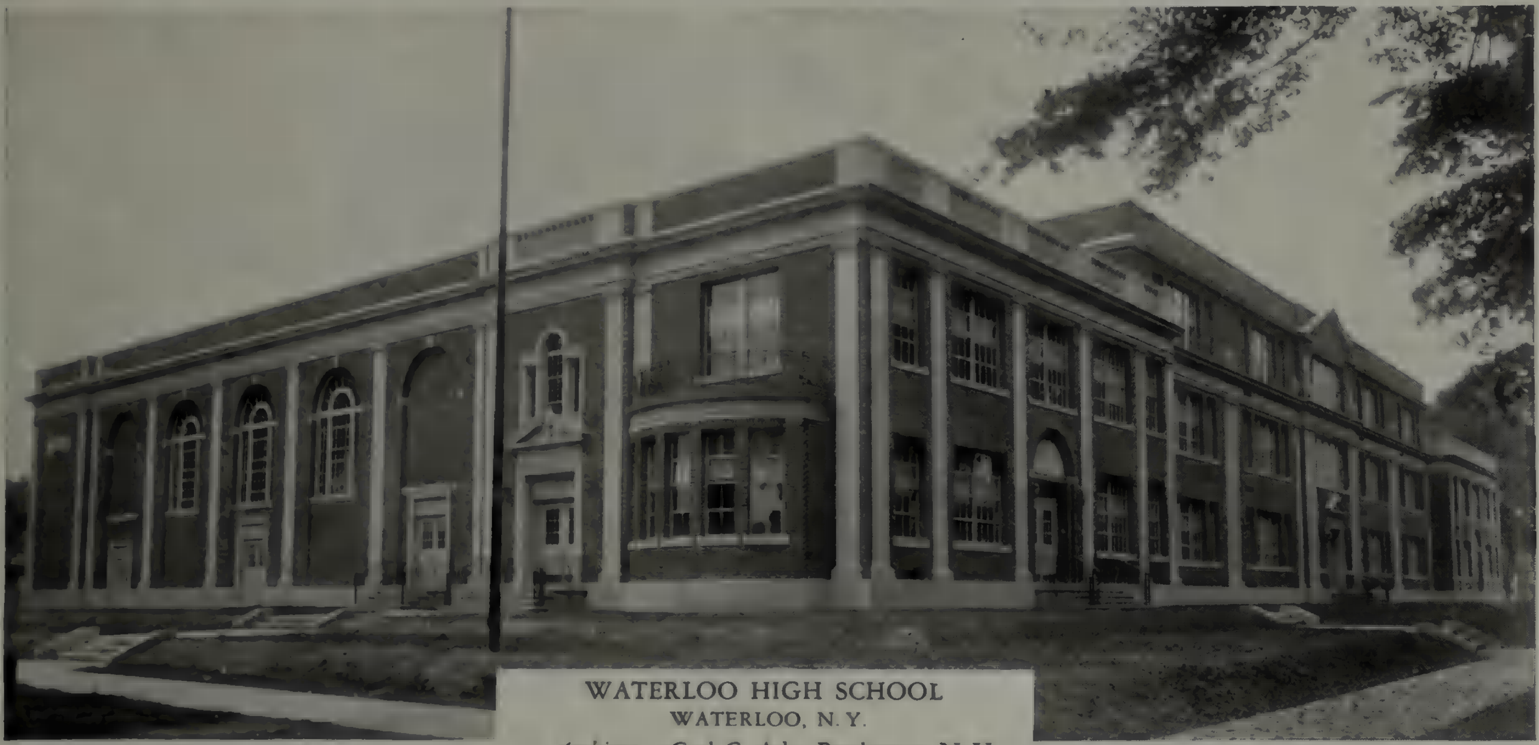
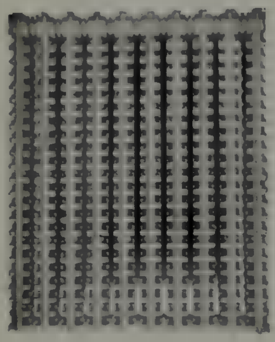


WATERLOO HIGH SCHOOL
WATERLOO, N. Y.
Architect—Carl C. Ade, Rochester, N. Y.
Contractors—Warnock and Zahrndt, Inc.
Rochester, N. Y.

Modern equipment for this modern school...

VENTO

CAST IRON HEATERS



Vento Cast Iron Heaters were selected for the Waterloo High School because the engineers knew that they would last as long as the school building, that they would furnish perfect heating indefinitely, and yet the cost would be very low.

Millions of square feet of Vento have been in constant operation year after year, and because of its perfect record it is endorsed by the world's leading engineers and architects. The superior cast iron from which Vento is made gives it almost unlimited life. And its unique design and construction insures rapid circulation of steam and breaks up the air currents causing the most intimate contact of air with heating surfaces so that it gives much greater heating efficiency.

We will be glad to send you complete information on Vento.

AMERICAN RADIATOR COMPANY

816 So. Michigan Avenue, Chicago
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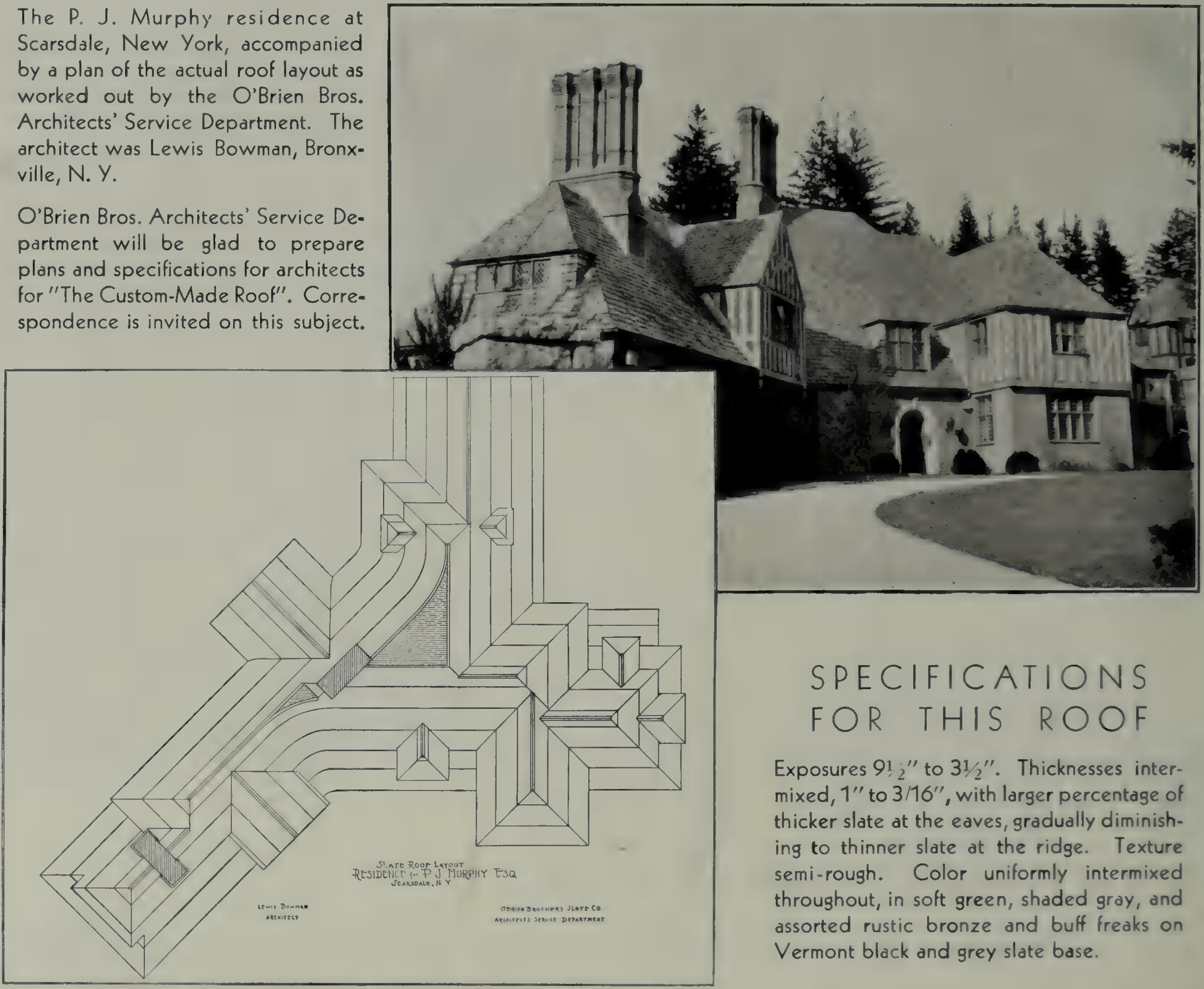
O'BRIEN BROS. offer the ARCHITECT

"The Custom-Made Roof"

The P. J. Murphy residence at Scarsdale, New York, accompanied by a plan of the actual roof layout as worked out by the O'Brien Bros. Architects' Service Department. The architect was Lewis Bowman, Bronxville, N. Y.

O'Brien Bros. Architects' Service Department will be glad to prepare plans and specifications for architects for "The Custom-Made Roof". Correspondence is invited on this subject.


Slate Roof Layout
Residence for P. J. Murphy Esq
Scarsdale, N. Y.
Lewis Bowman
Architect
O'Brien Brothers Slate Co
Architects Service Department

SPECIFICATIONS FOR THIS ROOF

Exposures 9½" to 3½". Thicknesses intermixed, 1" to 3/16", with larger percentage of thicker slate at the eaves, gradually diminishing to thinner slate at the ridge. Texture semi-rough. Color uniformly intermixed throughout, in soft green, shaded gray, and assorted rustic bronze and buff freaks on Vermont black and grey slate base.

O'BRIEN BROS. TAKE PRIDE in their thirty years' experience in slate craftsmanship, handling Nature's product, "SLATE STONE HAND WROUGHT," from old and tried quarries. Experts who know roof design are at your command, to execute your conceptions and add their specialized skill towards harmonization of color, tint and texture with the spirit and character of the individual project. Use "slate, hand wrought" for finest roof results, for longest life, for resistance to the elements that cause inferior products to disintegrate — and let the O'Brien Bros. Architects' Service Department co-operate in the layout.

Represented in Sweet's Architectural Catalogues Volume B, Page 1737

O'BRIEN BROTHERS SLATE COMPANY, Inc.

Established 1901

Architect's Service Department, Architect's Building, 101 Park Avenue, New York
Telephone ASHland 3651

Granville, N. Y.
Quarries: Pawlet, Vt.

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STATE BANK *of*
BEVERLY HILLS
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Architects
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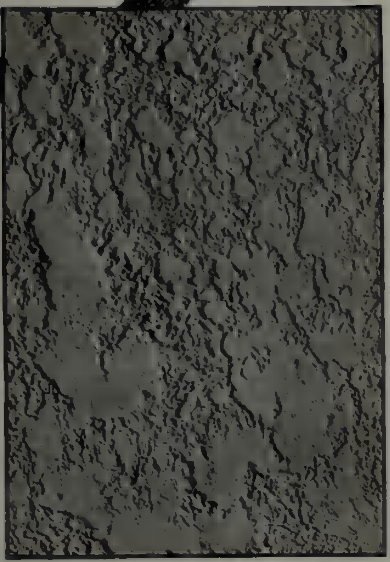
As our symbolized Tiger traverses the trail of America's finer architecture, his characteristic mark of distinction eloquently records his passing. For, whenever his attractive "Footprints" (ceiling and wall finishes and textures) appear, they are unquestionably accepted as positive evidence of a uniform quality construction and convincing assurance that high-grade materials have been employed throughout the entire structure.

The artistic effectiveness of Tiger "Footprints" is a reflection of superior working qualities embodied in the famous Tiger Finishing Lime. With its remarkable plasticity and smoothness, it is quickly applied and permits an exceptionally wide latitude for technical artistry. *Tiger "Footprints" make fine buildings finer.*

The KELLEY ISLAND LIME & TRANSPORT COMPANY
"World's Largest Producer of Lime"
LEADER BUILDING : : : : CLEVELAND, OHIO



FLEMISH TEXTURE

Another Attractive Tiger "Footprint"

An excellent treatment for ceilings, panels or small surfaces. Many effective two-tone color schemes are used to advantage with this finish.

The Famous
TIGER
FINISH

And—Tiger Mason's, Tiger Agricultural, Tiger Chemical, Tiger All-Purpose Hydrate in 10-lb. packages, and High Calcium and Magnesium Lump Limes. Also Quickslake (ground quicklime) in paper-lined jute sacks.

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Landmarks of Modern Protection

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A. D. T. Protection is used throughout, including Watchman's Compulsory Tour and Manual Fire Alarm Service, Sprinkler Supervisory Service, and Phonetalarm on vaults.

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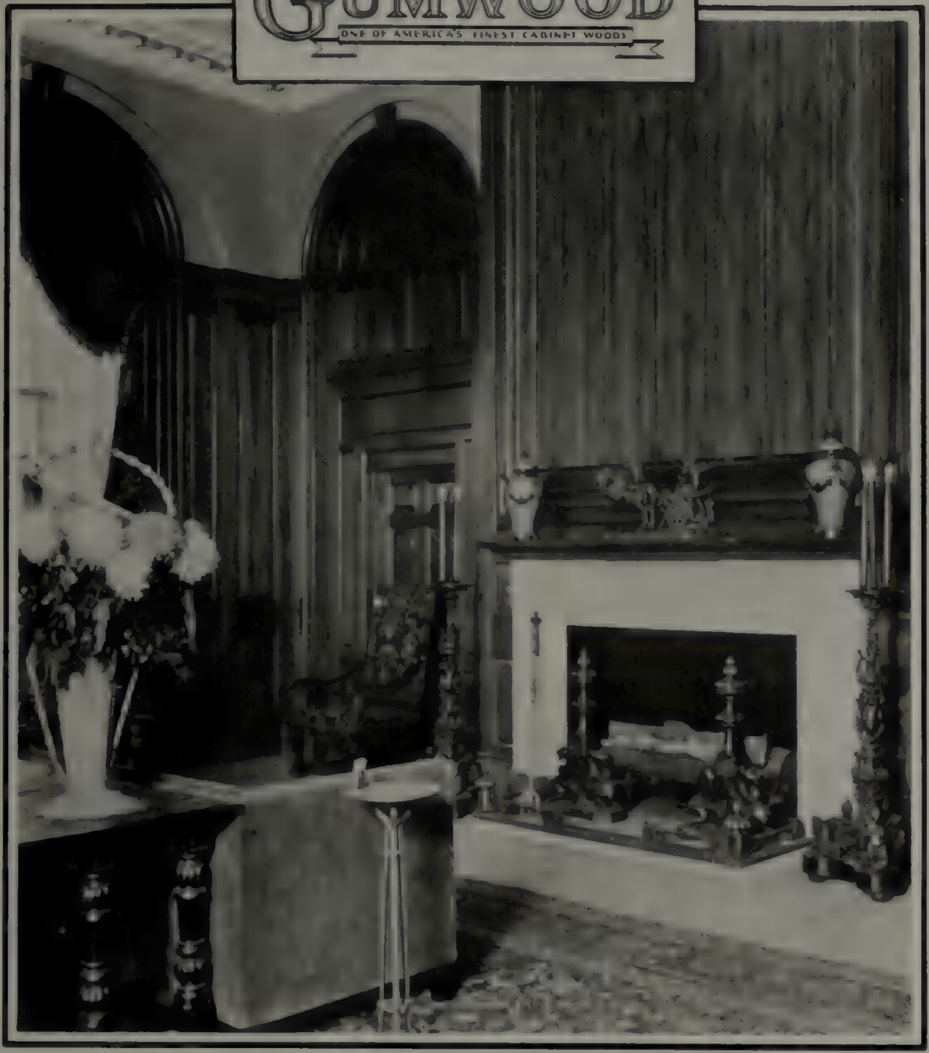
GUMWOOD

ONE OF AMERICA'S FINEST CABINET WOODS



Distinguished panelled effects at moderate cost made possible by Beautiful American Gumwood

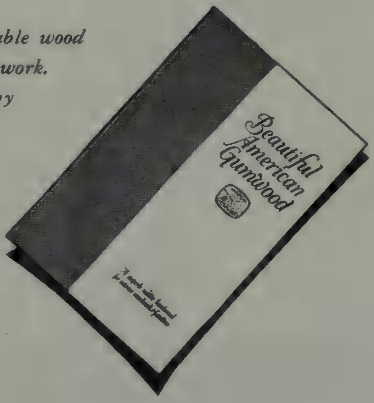
Wooded walls claim favor as never before. Judged by pronounced vogue in architectural work last year, America has received its "second sight" of the sense of dignity and livability that inheres from the use of this time-honored wall treatment.

Architects find in the original, striking figured beauty of Beautiful American Gumwood a medium capable of inspiring original distinguished effects in panelled interiors. Indeed, many of the nation's foremost firms have chosen it in preference to more costly cabinet woods.

Either plain or figured, Gumwood (commonly called "Red Gum") bestows a wood beauty all its own, no matter how sparingly used. Too much has been said in the past of its harmonizing qualities, as a substitute for other woods, and too little of its own lavish, fantastically beautiful character.

SAP GUM

Sap Gum offers the architect a dependable wood of extreme economy for painted woodwork. May we send you a complimentary copy of the booklet "Beautiful American Gumwood" that tells about finish treatments, etc?



GUMWOOD SERVICE BUREAU
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TIME—THAT TOUGH OLD TESTER....

Meet Time, that tough old tester of everything in this world. To his aid, Time calls all the destructive forces of the universe. Years come and go, storms and sunshine, heat and cold make their accustomed rounds, while Time, the tough old tester, broods over the world, trying, testing, destroying.

Yet Time, the tough old tester, does have his troubles. Against one material devised by man, Time and his serving-men falter. That material is genuine Puddled Wrought Iron—the metal of which Reading 5-Point Pipe is made. Watch for the next coming of Time, the tough old tester—you can learn about pipe from him.

READING IRON COMPANY, Reading, Pennsylvania

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This Indented Spiral
Forever Marks
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5 POINT PIPE
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GENUINE PUDDLED WROUGHT IRON

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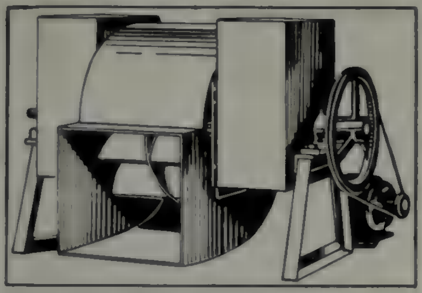

The Piatt-Furblo Positive Air Agitation Means Pure, Fresh Air Circulation. No Cold Spots. Warm Air Continually Moving, Carried to All Parts of the House, Greatly Increases Furnace Efficiency.

NEW

a warm-air, oil-burning furnace with Fan Circulation—for the price of a Good Oil-Burner

Revolutionary—this furnace with a built-in oil burner and a Furblo positive-action Circulating Fan forces humidified, warm air into every cold corner, and circulates cool air in summer.

Regardless of furnace placement, the Piatt Oil-burning furnace gives these advantages: A simple, quiet, attention-free Piatt burner approved by Underwriters' Laboratories burns 38-40 gravity oil. A boiler-plate, welded joint combustion chamber picks up all possible heat. Three types of air distribution meet different needs. A Piatt-Furblo fan forces freshly warmed air throughout the building.

To sum it up, Piatt offers a complete oil-burning, heating and air-circulating system for about the price of a good oil burner. Initial cost is low. Installation is simple. Operation is of the economy typical of all Piatt Appliances.

Full details in a file-size specification sheet will be forwarded to any architectural office upon request.

MOTOR WHEEL CORPORATION
LANSING Heater Division MICHIGAN

PIATT **OIL BURNING APPLIANCES** *made by* MOTOR WHEEL CORPORATION

BRYN MAWR SLATE

A BRYN MAWR Slate Roof, by Owen W. Owens Sons, Inc., on the home of Mr. Howard Hammitt—(David S. Douglas, architect)—a modern residence of the simpler type that lends itself so well to the rugged, old-world directness of this oldest of all types of roofing. Thickness of edge and gradation in reveal have much to do with the harmony of the whole.

THE peculiarly domesticated charm—the air of fitting into and blending perfectly with the background—that distinguishes so many delightful homes is more often than not attributable to a fine slate roof. Not the material only, but the careful harmonization of tones and colors, the skilful handling of exposure to weather, gradation of thickness, and the predetermined variation in texture and finish. We are and have been since 1884 *specialists* in slate and its most effective use, and stand ready to supply promptly and in almost unlimited quantities, fine grades of "BRYN MAWR" Vermont Slate, in all desired tints and colors, for roofing, flagging and interior work.

See Sweet's, Vol. B, Page 1754

OWEN W. OWENS SONS, INC.

Established in 1884

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CASEMENT WINDOW – THE "FENCRAFT"

by

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A series of medium weight, solid section, steel casements equipped with solid bronze hardware and designed to reflect the high quality of distinctive homes· Supplied with or without screens· Arranged for leaded glass or made with interior muntins if desired

DETROIT STEEL PRODUCTS COMPANY
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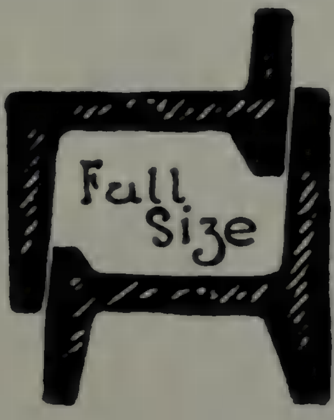
Oldest and largest steel window makers in America



A WINDOW LEDGE IS A TREACHEROUS WORK BENCH

THE few inches of window ledge that protrude from the face of a building are seldom designed to provide a safe footing for the window cleaner. Narrow, slippery, and always dangerous, it is not strange that window cleaning is classified as one of the most dangerous of industrial occupations. According to Dr. Eugene Fisk of the Life Extension Institute, the death rate among window cleaners is from 40 to 60% above the average.

The risk, the high insurance rates, the high wage rates that attend outside window cleaning methods are all unnecessary.

With Williams Reversible Window Equipment all cleaning is done from inside of the room, usually at floor level. Windows are cleaned safely, swiftly, and thoroughly, in half the time required by outside cleaning methods. The hazards of outside cleaning are completely eliminated. Cleaning costs are so reduced that Williams Reversible Window Equipment will pay for itself in a few years. This saving continues for the life of the building.

For 25 years manufacturers and installers of Reversible Window Equipment

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EAST THIRTY-SEVENTH STREET AT PERKINS AVENUE . . . CLEVELAND, OHIO

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WINDOW EQUIPMENT
Clean Your Windows from the Inside

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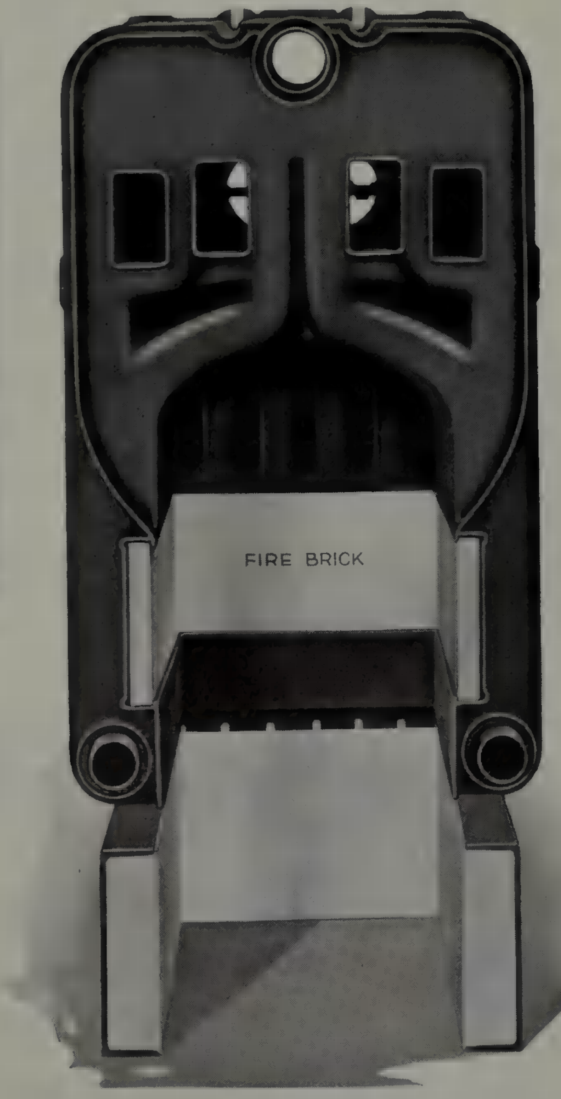

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See the Trumbull "Circle T" catalogue in the new 4-volume Sweet's, Vol. D, pages 5164-5165.

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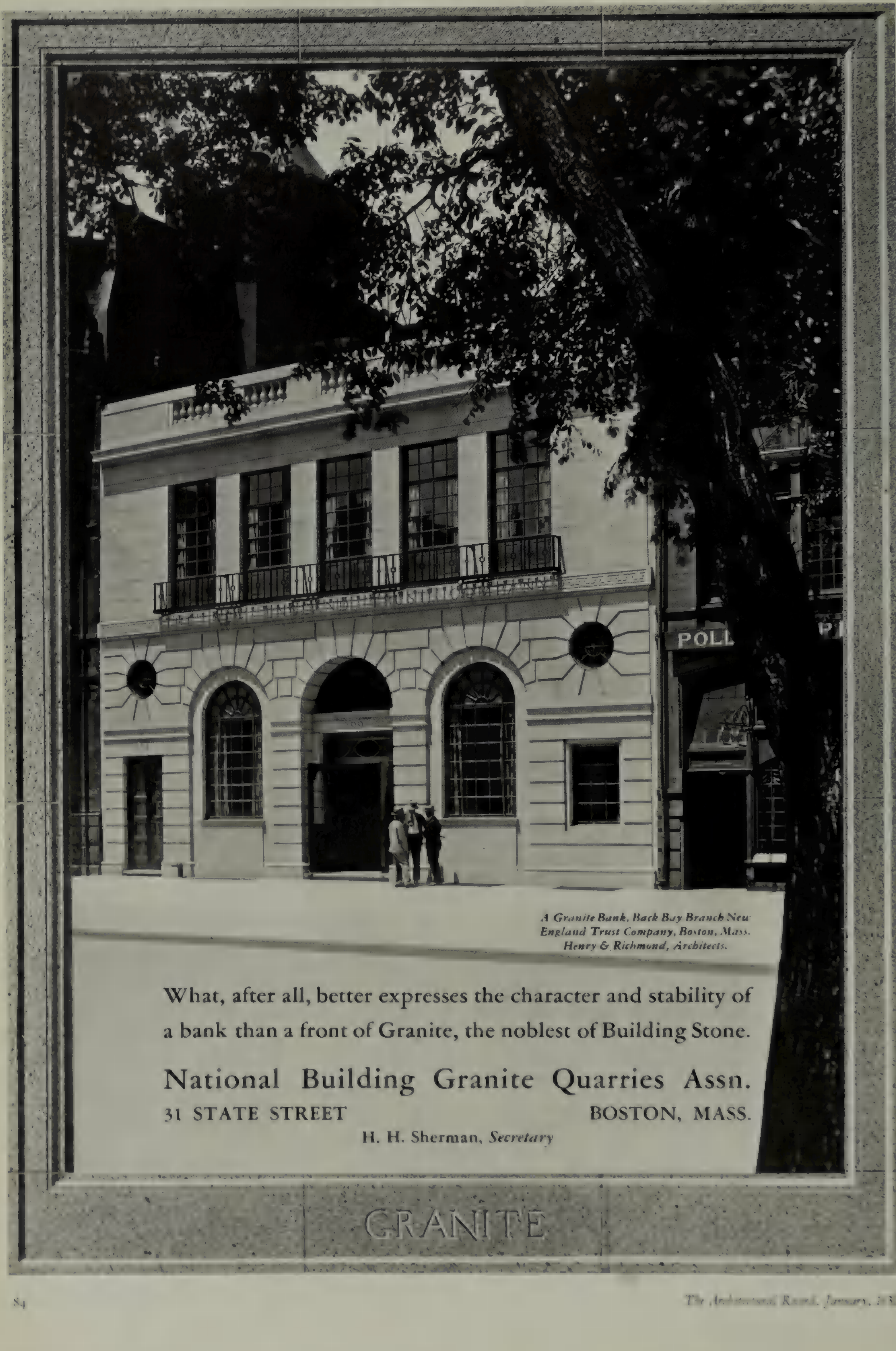

A Granite Bank, Back Bay Branch New England Trust Company, Boston, Mass. Henry & Richmond, Architects.

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National Building Granite Quarries Assn.
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H. H. Sherman, *Secretary*

ARCHITECTS' ANNOUNCEMENTS

CALENDAR OF EVENTS

GENERAL ANNOUNCEMENTS

Jan. 18-30	The second International Exhibition of Building Trades and Allied Industries at Brussels.
Jan. 24	Beaux-Arts Ball, Hotel Astor, New York.
Jan. 27-31	International Heating and Ventilation Exposition at the Commercial Museum, Philadelphia, under the auspices of the American Society of Heating and Ventilating Engineers.
Feb. 2-March 2	Architectural League Exhibition, American Fine Arts Building, 215 West 57th St., New York City.
March-April	Fifth International Exhibition of Housing and Modern Industrial Applied Arts at Nice, France.
May 20-Oct. 1	Exhibition of Modern Architecture and Industrial Arts at Stockholm, Sweden.
May 26-30	Fifth International Congress of Building and Public Works, London.
June 19-30	The fourth Pan-American Congress of Architects and Architectural Exhibition at Rio de Janeiro.
September	International Congress of Architects at Budapest.

COMPETITIONS

Jan. 15	Last date on which nominations may be received of entrants for the Le Brun Travelling Scholarship Competition for 1930. Address Le Brun Scholarship Committee, Room 530, 101 Park Avenue, New York.
March 1	Closing date of annual competition for the Prize of Rome in architecture, painting, sculpture and musical composition. The competitions are open to unmarried men not over 30 years of age who are citizens of the United States. The stipend of each fellowship is $1,500 a year with an allowance of $500 for transportation to and from Rome and $150 to $300 for materials and incidental expenses. Residence and studio are provided at the Academy, and the total estimated value of each fellowship is about $2,500 a year for three years, with opportunity for extensive travel. Entries for competitions will be received until *March first*. Circular of information and application blanks may be obtained by addressing Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.

Mr. Walter T. Arnold, formerly of Meriden, Conn., has moved his architectural offices to 487 Main Street, Hartford, Conn.

George A. Bagge & Sons, architects, announce the removal of their office to 7 East 44th Street, New York, N. Y.

Mr. Duncanhunter, architect, announces that he is now practising independently at 10 East 40th Street, New York, N. Y.

Mr. Charles S. Downs, consulting engineer, has opened offices at 175 Fifth Ave., New York.

Mr. Arthur O. Dunn, architect, has opened an office at 321 Home Savings Loan Co. Building, Youngstown, Ohio.

Carter Bloxonend Flooring Co. is represented in Sweet's Architectural Catalogues for 1930 but this was not properly indicated in the Index to Advertisements in the December 1929 issue of The Architectural Record. This oversight is corrected in this issue.

Mr. Eccles D. Everhart, architect, formerly of 944 South Hawthorne Road, Salem, N. C., is now located in his new offices at 615 Commercial Bank Building, High Point, N. C.

Mr. Charles W. Frank, architect, is now located in his new building at 8 South Adolph Ave., Akron, Ohio.

Mr. Frederick G. Frost, architect, announces the removal of his offices from 144 East 54th Street to 144 East 30th Street, New York, N. Y.

Hutchisson, Holmes & Hutchisson announce the removal of their offices to rooms 701-2 First National Bank Annex, Mobile, Ala.

Mr. J. Jokiel, architect and civil engineer, has opened an office at 211 Third Street, Quincy, Ill.

Lawrence, Holford, Allyn & Bean, architects, announce the removal of their offices to 925 Failing Building, Fifth and Alder Streets, Portland, Oregon.

Mr. Charles H. Lench has moved his architectural offices to 180 Madison Ave., New York.

Mr. Alexander Lewis, architect, announces the removal of his office from 416 Espanola Way to 7 Lincoln Road, Patio, Miami Beach, Fla.

We regret to announce the death of Ralph Mather, senior member of the firm of Mather & Fleischbein, 442 Endicott Building, St. Paul, Minn. Mr. Mather died on Nov. 6th. He was in his fifty-fourth year.

Mr. James A. Meacham has been appointed engineer in charge of inspection and research for the H. K. Ferguson Co. of Cleveland, Ohio.

Mr. Ed. Misson-Sharpe, architect, formerly of 60 Samson Street, is now located at Room 601, Underwood Building, 525 Market Street, San Francisco, Calif.

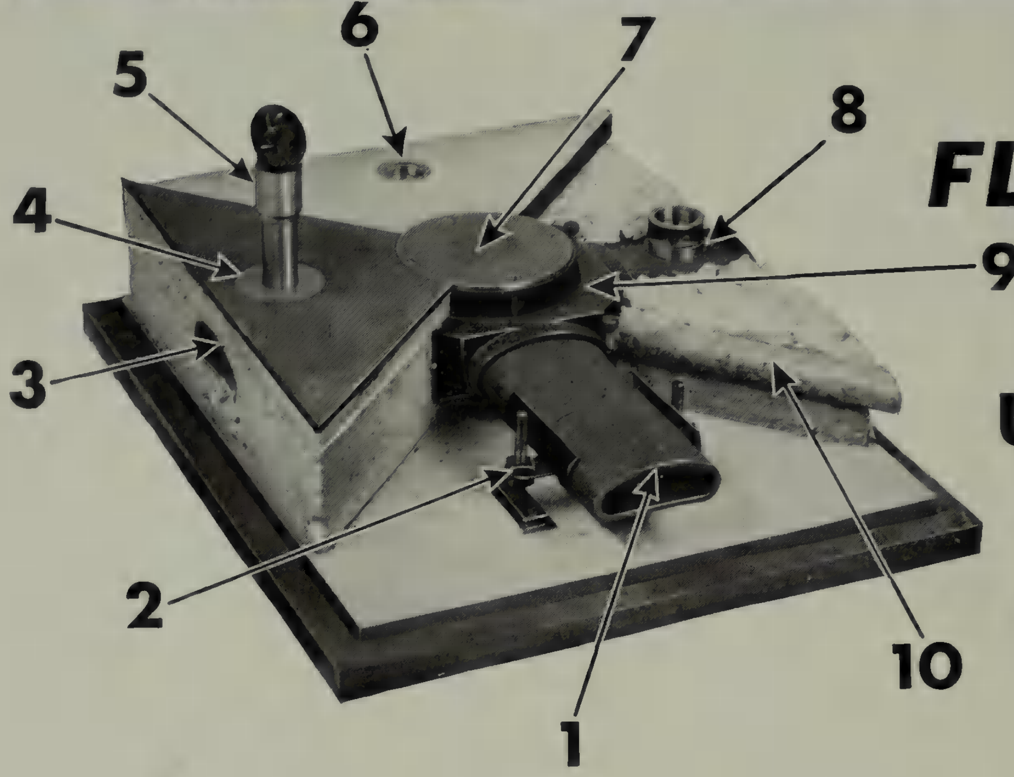
Mr. N. A. Nelson, architect, formerly located in the Rosemurgy Building, has removed his offices to 166 Harding Street, Ironwood, Mich.

Mr. W. R. Oltar-Jevsky, architect, formerly of 150 West 42nd Street, New York City, is now located in his new office at 55 West 42nd Street, Room 1107.

Walker & Gillette, architects, have moved their offices to the 39th and 40th floors of the Fuller Building at 57th Street and Madison Ave., New York.

Mr. Robert M. Wright, architect, announces the dissolution of the partnership of Wright and Hohl. He will continue the business of the former partnership in the same offices at 4614 Prospect Ave., Cleveland, Ohio.

G-E FIBERDUCT



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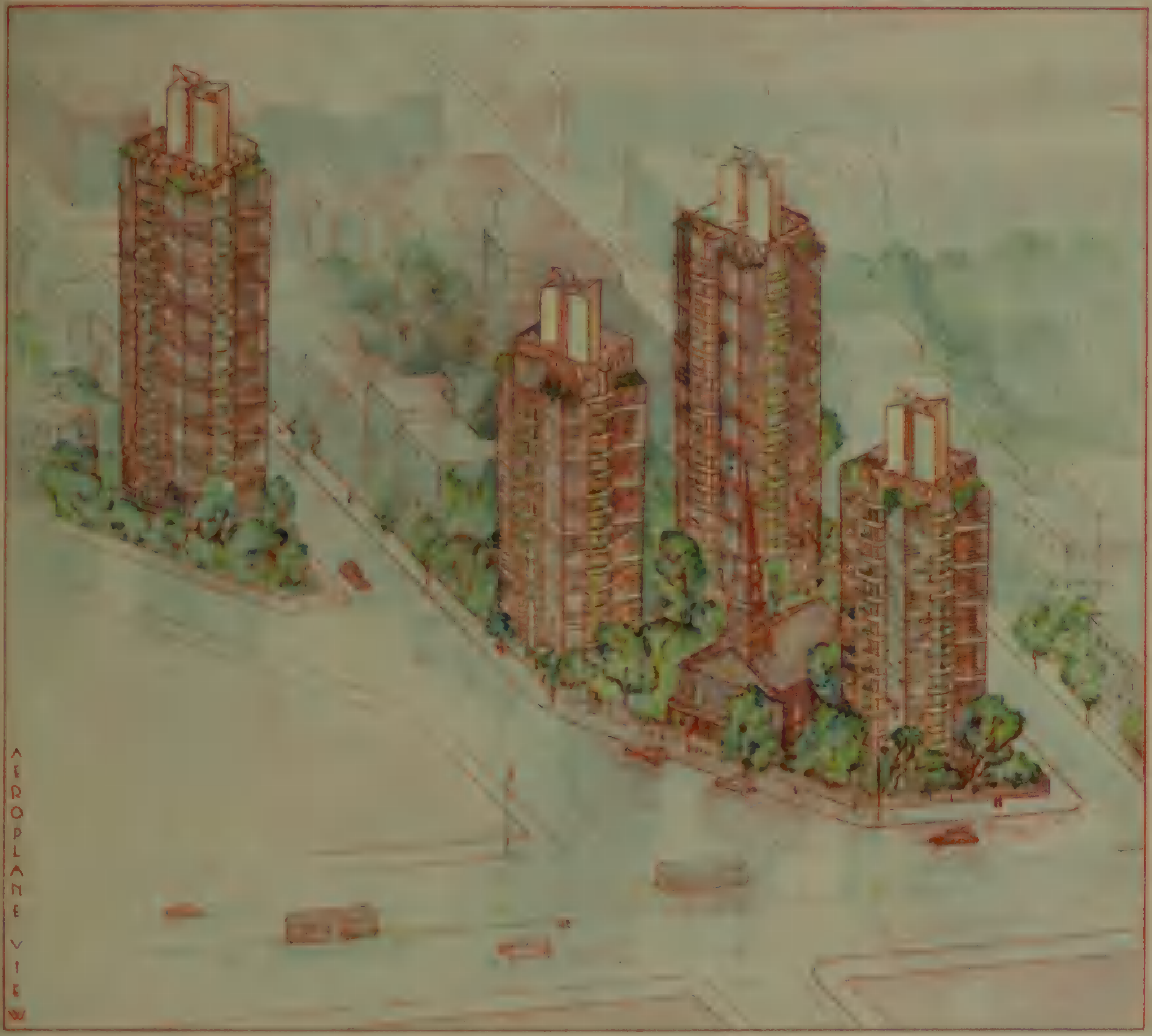


ST. MARK'S TOWER · ST. MARK'S IN THE BOUWERIE · NEW YORK CITY.

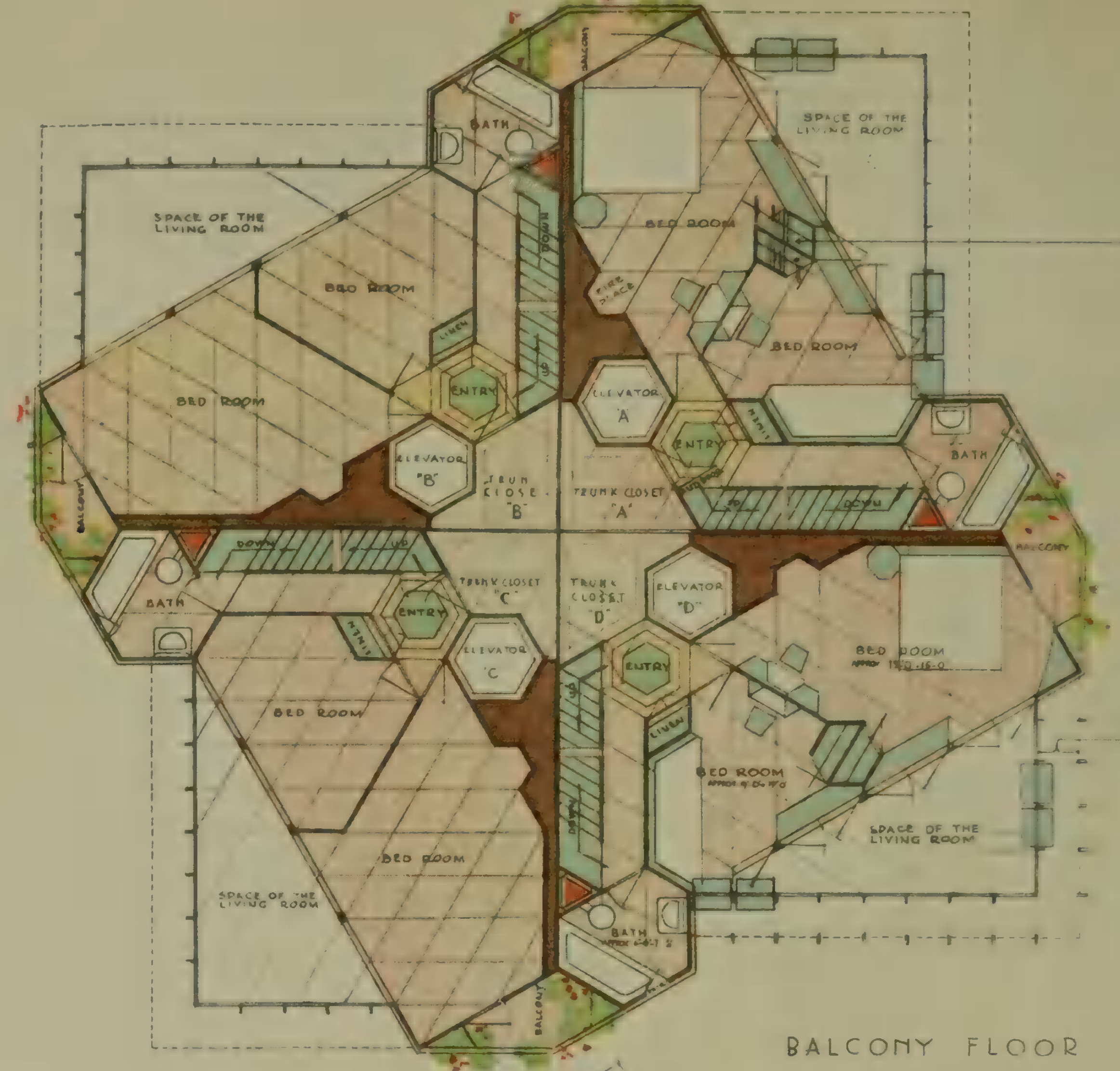
In this project, Frank Lloyd Wright realizes some of the most advanced aims professed by European architects, without attendant anomalies. The uninterrupted glass window is achieved without either unprotected steel, or rooms cluttered with interior posts. The apartments are given a high degree of privacy, plenty of daylight and utilizable space. Located in a park on church property these towers will always stand free.

The whole building is hung on a core of concrete retaining walls, shown projecting at the top in the rendering above, and in section (brown) in the plans on page 2. The network upon which the plan is developed is that of the reinforcing system.

Every apartment is a duplex. The living room carries through both floors. It is marked by the copper parapets (perspective, page 4.) The bedroom stories (projecting in concrete balconies, see page 4) are set in a continuous steel truss cantilevered at an angle so that on the inside this story forms a balcony across the living room. Openings follow the struts of the truss.

To avoid torrents of water on the glass in heavy rains, every successive apartment projects out slightly beyond that below it, making the building somewhat larger at the top.

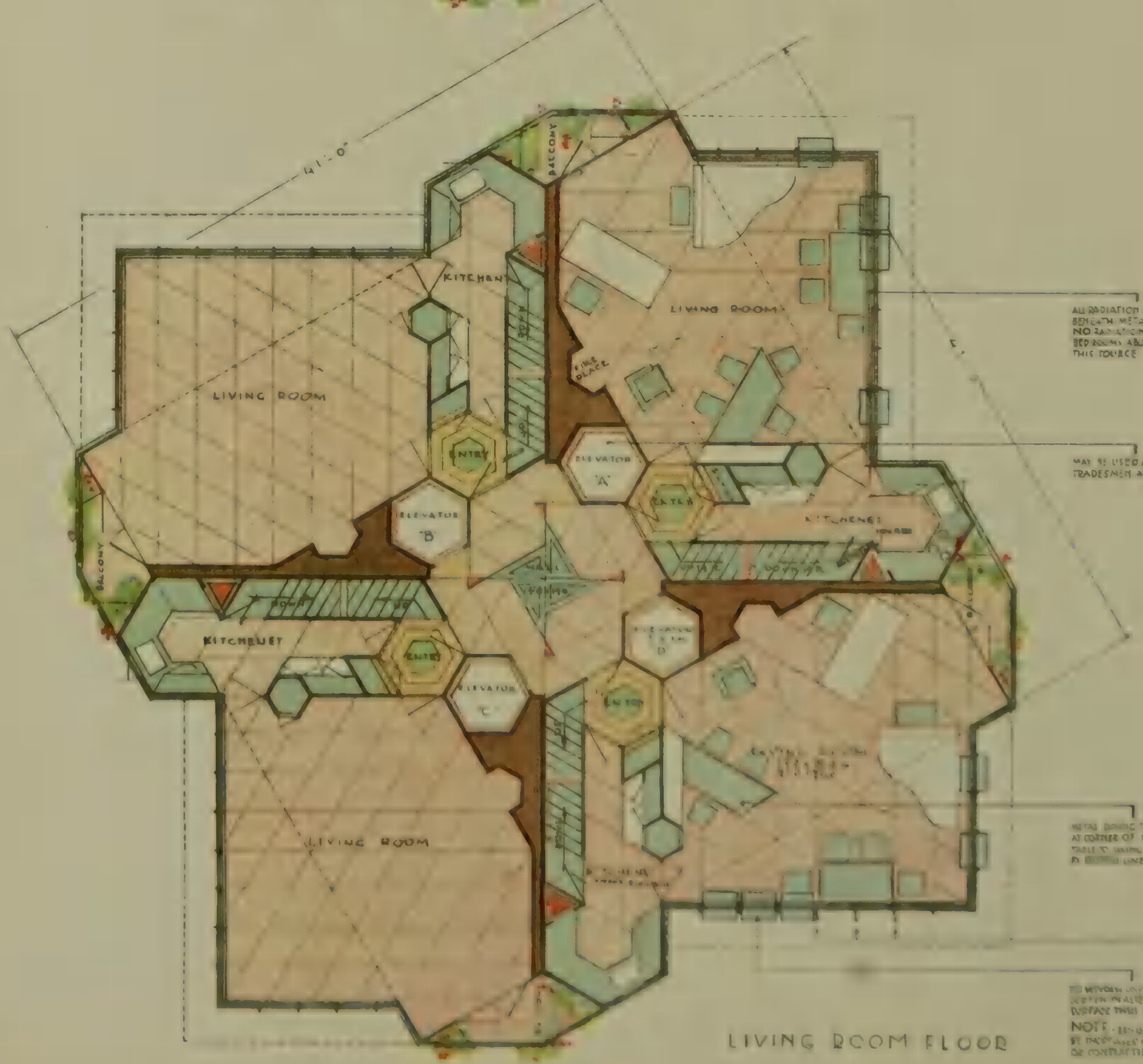
The conveniences of internal arrangement can be read from the plan. A noteworthy feature is that though every apartment has two usuable balconies each is cut off from direct view of the neighbors.



METAL WARDEROBES WITH SLIDING RODS FOR CLOTHES - HANGERS 7'-6" HIGH

LIVING ROOM FLOORS EXTEND TOWARD DOTTED LINE 3½' EACH FLOOR ABOVE THE STORY BELOW

BALCONY FLOOR



ALL RADIATION HORIZONTAL CIRCULATION BENEATH METAL EXTENSION OF WINDOW SILL NO RADIATION NEEDED OTHERWISE BED ROOMS ABOVE RECEIVING HEAT FROM THIS SOURCE

MAY BE USED AS DELIVERY ELEVATOR IN CASE TRADESMEN ARE ALLOWED IN BUILDING

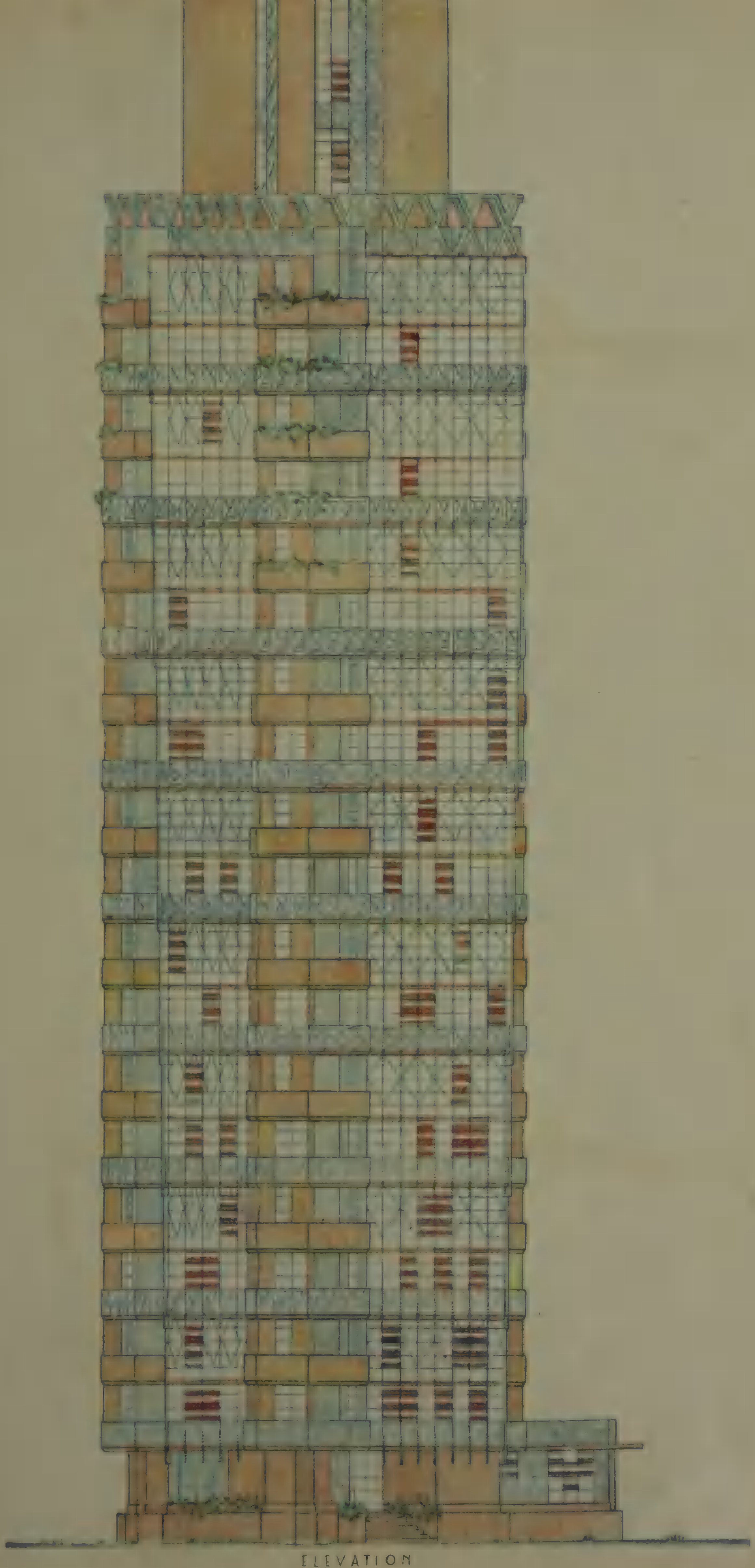
METAL DINING TABLE HINGED TO METAL UPRIGHT AT CORNER OF SIDE BOARD
TABLE TO SWING [illegible] INDICATED BY [illegible] LINES

[illegible] WINDOWS [illegible] PIVOTED [illegible] SET IN ALTERNATE CELLS [illegible] GLASS SURFACE THUS EASILY WASHED FROM INSIDE

NOTE - [illegible] OF GLASS SURFACE MAY BE INCREASED OR DIMINISHED BY EXTENSION OR CONTRACTION OF DRAWING SLABS [illegible]

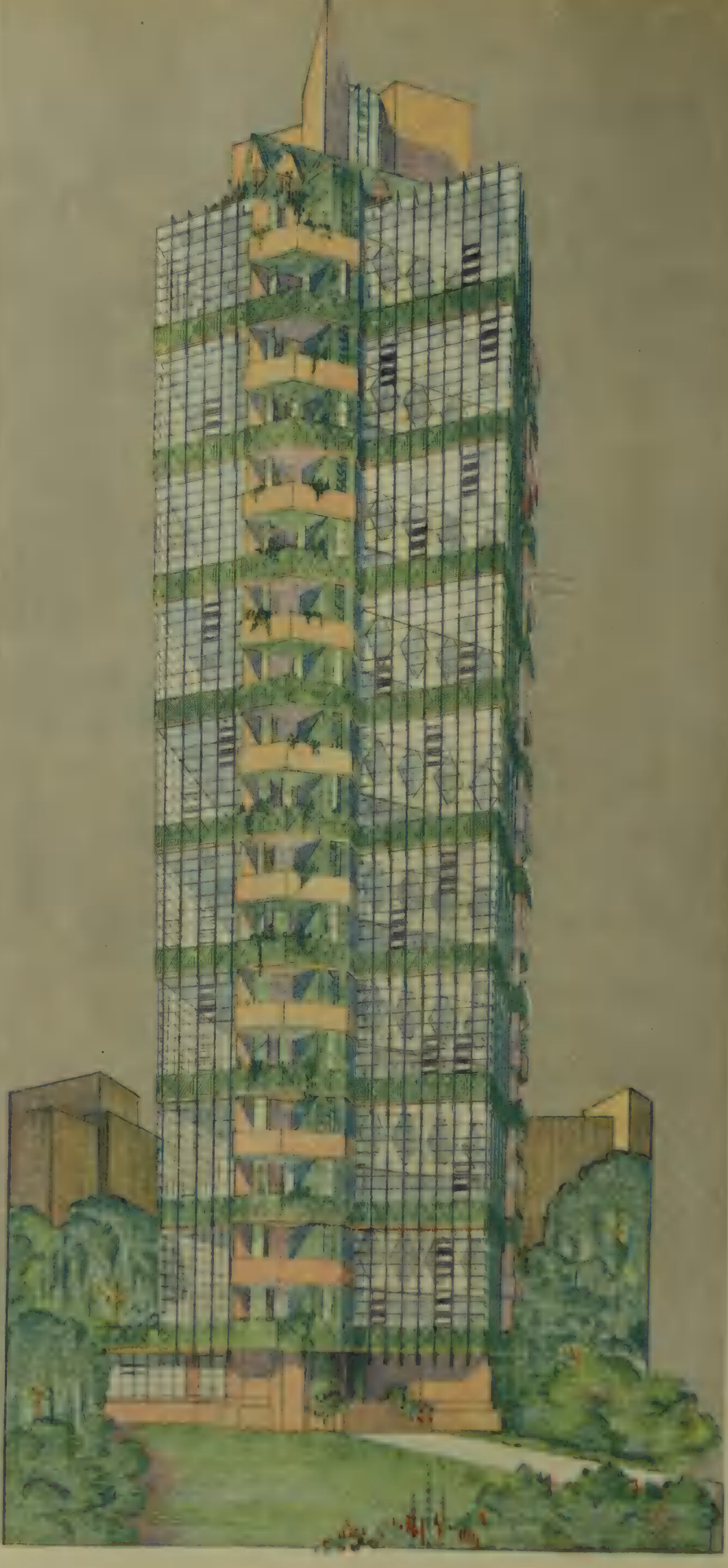
LIVING ROOM FLOOR

FRANK LLOYD WRIGHT ARCHITECT **ST. MARK'S TOWER** · ST. MARK'S IN THE BOUWERIE · NEW YORK CITY.



ELEVATION

ST. MARK'S TOWER · ST. MARK'S IN THE BOUWERIE · NEW YORK CITY · FRANK LLOYD WRIGHT ARCHITECT



FRANK LLOYD WRIGHT ARCHITECT **ST. MARK'S TOWER** · ST. MARK'S IN THE BOUWERIE · NEW YORK CITY.

THE ART MUSEUM OF TOMORROW

BY CLARENCE S. STEIN, ARCHITECT

PROBLEM:

Art museums appeal to different groups in different ways. The general public visits them for enjoyment or inspiration. Students and craftsmen seek information.

In most museums of today exhibits are shown in a manner that serves none of these groups adequately. The two functions of inspiration and education should be separated. A visitor should not be tired by walking through endless irrelevant galleries. He should be fresh to enjoy or study just what interests him.

The essential problems of museum planning boil down to these:

1. To give direct access to the collections a visitor wishes to see, without the necessity of passing through other collections.

2. To give the casual visitor an idea of the beauty of art works of the past by showing him a few objects *well placed*. He wants inspiration first, instruction later.

3. To give the student and craftsman easy access to, and the facilities for the study of, all the material the museum may possess.

4. To connect the museum of the general public with that of the student, so that the casual visitor who becomes interested in any type of exhibit may follow his interest further and go from the rooms containing exhibitions directly to those for study of the same subject.

5. To give all visitors to the museum an opportunity from time to time to glimpse gardens and outdoor vistas. Nothing causes so-called museum fatigue so much as miles of rooms filled with inanimate objects and allowing no sight of living nature.

6. To arrange the unseen machinery that keeps the museum running in a logical, related manner.

The plans presented here are purely diagrammatic. Their object is to show how the parts of a great art museum can be related as to solve these problems.

THE PUBLIC'S MUSEUM—*A Museum for Inspiration:*

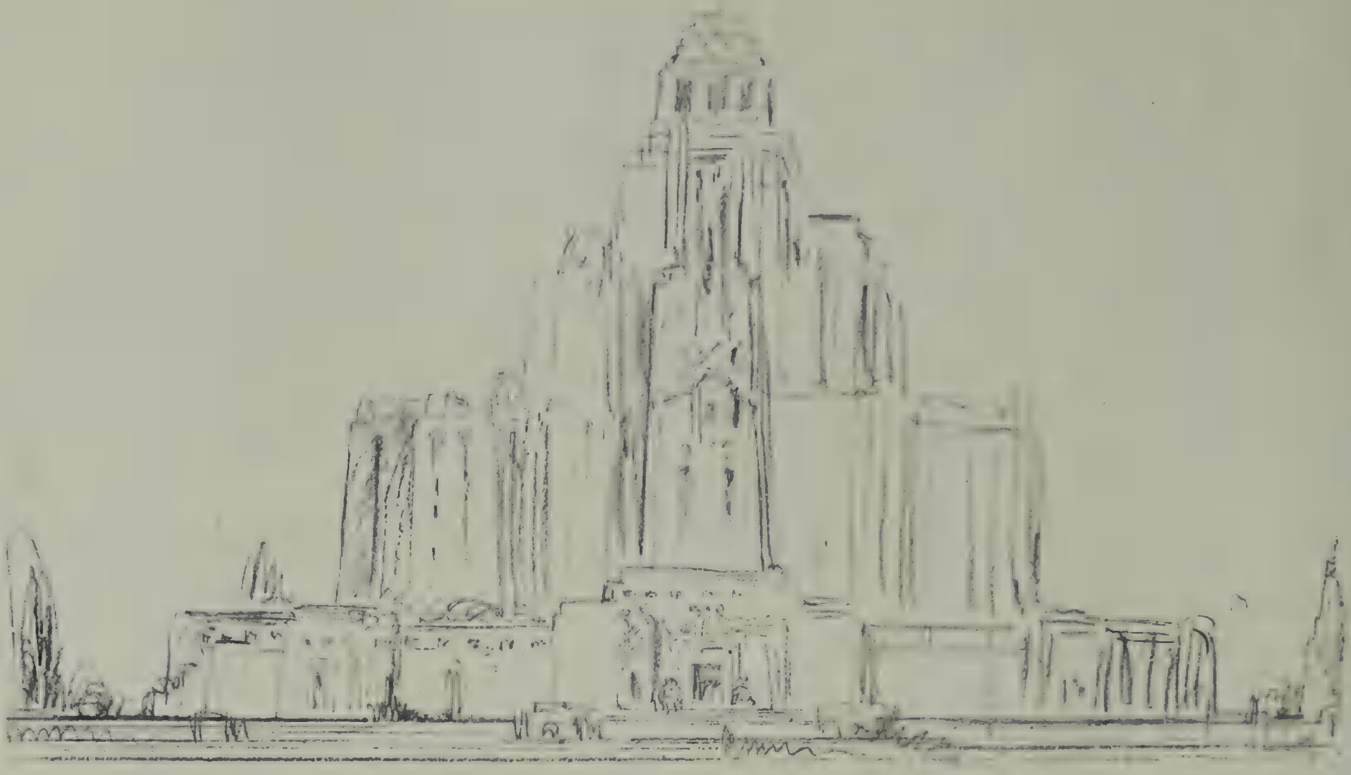
The casual visitor goes to a museum to enjoy himself. He lacks the critical ability to gain anything by comparing picture with picture. What he wants is an opportunity to *feel* and enjoy the real beauty of works of art. Explanation will not help him.

In the museum of today there is too much to see. As one at last finds the exit one has the jumbled recollection of endless vistas through doorways, and doorways, and doorways; of endless halls and walls crowded with aesthetically antagonistic objects; of row above row of gold frames and paintings, armies of white statues, a thousand snuff boxes, a quarter of a mile of pottery, and all the chairs that the *Mayflower* brought over in a hundred trips—and never a view of natural green.

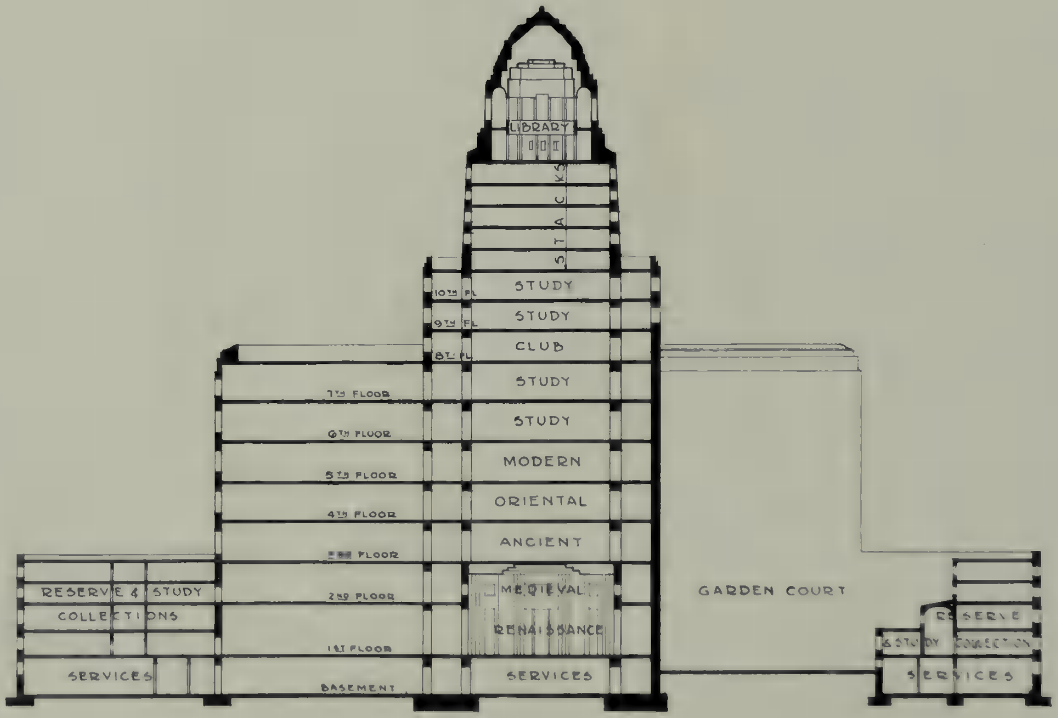
The museum of tomorrow will show the casual visitor a limited number of its choicest possessions, every object so placed as to accentuate its individual beauty. He will see as much or as little as he wants to, and will find it without difficulty.

From the central rotunda he may enter any one of seven groups of small rooms exhibiting in a related manner the choicest masterpieces of the museum in both painting and the allied arts. He can ask direction at the information desk, placed at the hub as that in the Grand Central Station (see page 8). Elevators lead to the collections on the upper stories. Every collection of the public's museum on every floor will be directly accessible from the central core of the building, without the interposition of any other collection.

To reach the central rotunda from the entrance the visitor has but to pass through a vestibule and a reception gallery. This gallery can be a place of gay beauty. The "sight-seeing" will not commence until the visitor has reached the rotunda. Art will not be forced upon him. At either side of



SKETCH



SECTION

"THE MUSEUM OF TOMORROW"

CLARENCE S. STEIN, ARCHITECT

The plans and sections shown in this article are purely diagrammatic. Other systems of classification of material than those shown can be followed.

the gallery, he will find a series of alcoves where he can rest and meet his friends. Through the windows he will see courts arranged with brilliant flowers and tiles and sparkling fountains. In the reception gallery there may be a few tapestries, some pieces of sculpture, and a lovely group of furniture, to be used, not merely to be examined. There he may sit and listen to the music of an organ or to a small orchestra.

But the exhibitions themselves are not going to be tiresome. The works will be grouped together in a series of small rooms of varied size and arrangement. For the purpose of illustration I am assuming that they will be grouped by periods or nationalities. But it is quite possible that in some museums they will be arranged in quite different ways; for example, so as to more easily relate the works of past and present.

One group of rooms may contain enough of the art of Spain to suggest the inspirational contribution of Moor and Christian to the world of art. The visitor will leave the central rotunda and enter a suite of galleries that might be part of the palace of a Spanish noble of the sixteenth century. From a balcony he looks down upon a little patio, decorated with tiles and fountains as if it were part of Granada. He climbs tiled stairs to a series of halls reminiscent of the Alhambra. He returns to the rotunda and is directed to the French wing. It might be Versailles—a gallery of Louis XIV, a boudoir of the time of Marie Antoinette, salons of the Regence and the Empire. Furniture, sculpture, metal balconies, bric-a-brac, as well as choice paintings, are all of the period. In a court below is a garden with all the formality of Versailles. An elliptical stairway leads this time to rooms of the days of Blois and Francis I, and beyond is a Gothic hall. In the same way are grouped the art of England, the American Colonies, Holland, Belgium and Germany, each around the gardens that formed an essential part of its art life. These gardens not only complete the background for the works of each period and place, but at the same time give that pleasant relaxation which a visitor to a museum so much needs.

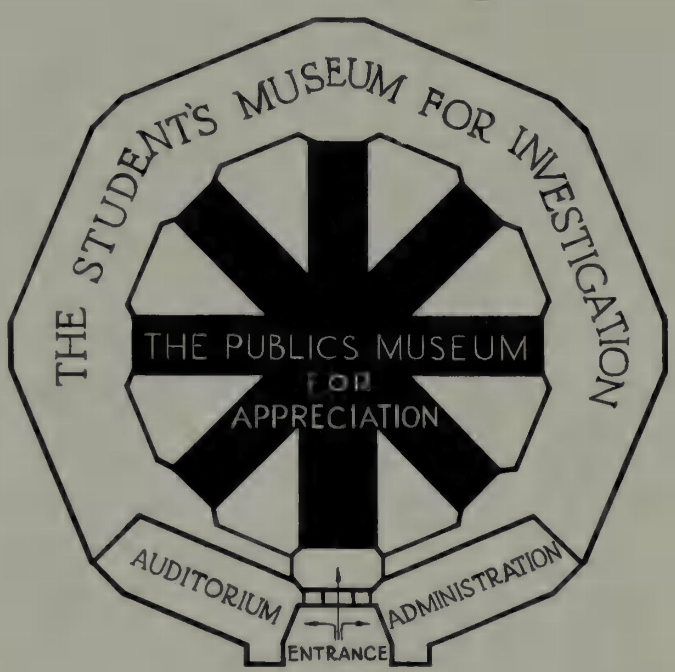

THE STUDENT'S MUSEUM FOR INVESTIGATION
THE PUBLICS MUSEUM FOR APPRECIATION
AUDITORIUM
ADMINISTRATION
ENTRANCE

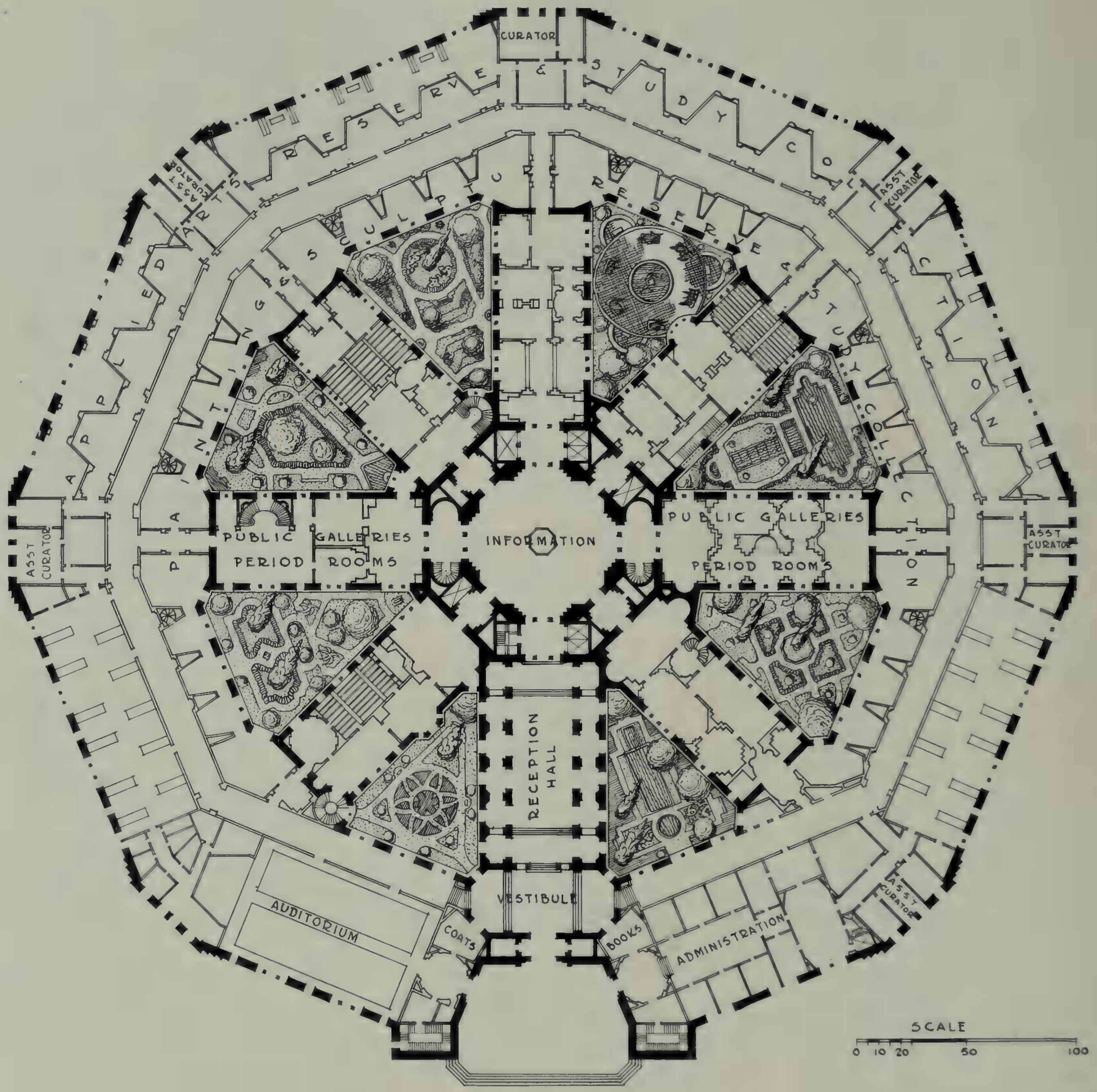
DIAGRAM OF "THE MUSEUM OF TOMORROW"
CLARENCE S. STEIN, ARCHITECT
The public's museum radiates from the center as the spokes of a wheel; the student's museum forms the periphery

If one wants to judge the great advantage of authentic interiors as a setting, one has but to visit the Colonial rooms in the Metropolitan Museum or the new section of the Philadelphia Museum and the Museum of Fine Arts at Boston. These rooms appeal to the emotions because they contain a few objects in a harmonious, sympathetic environment. The historical setting will probably be chosen for this purpose as long as Europe and the rest of the world can continue to supply us with real rooms. Fake interiors, or an approximation of the character of the period represented, are hardly satisfactory as a background for works of art.

•

THE STUDENT'S MUSEUM—*A Museum of Education:*

The museum which will give understanding to the student requires quite a different arrangement from that which will give appreciation to the general public. The student needs a comprehensive view of what he is studying. Every authentic work which the museum finds worth keeping should be arranged in an orderly, systematic



MAIN FLOOR, "THE MUSEUM OF TOMORROW"

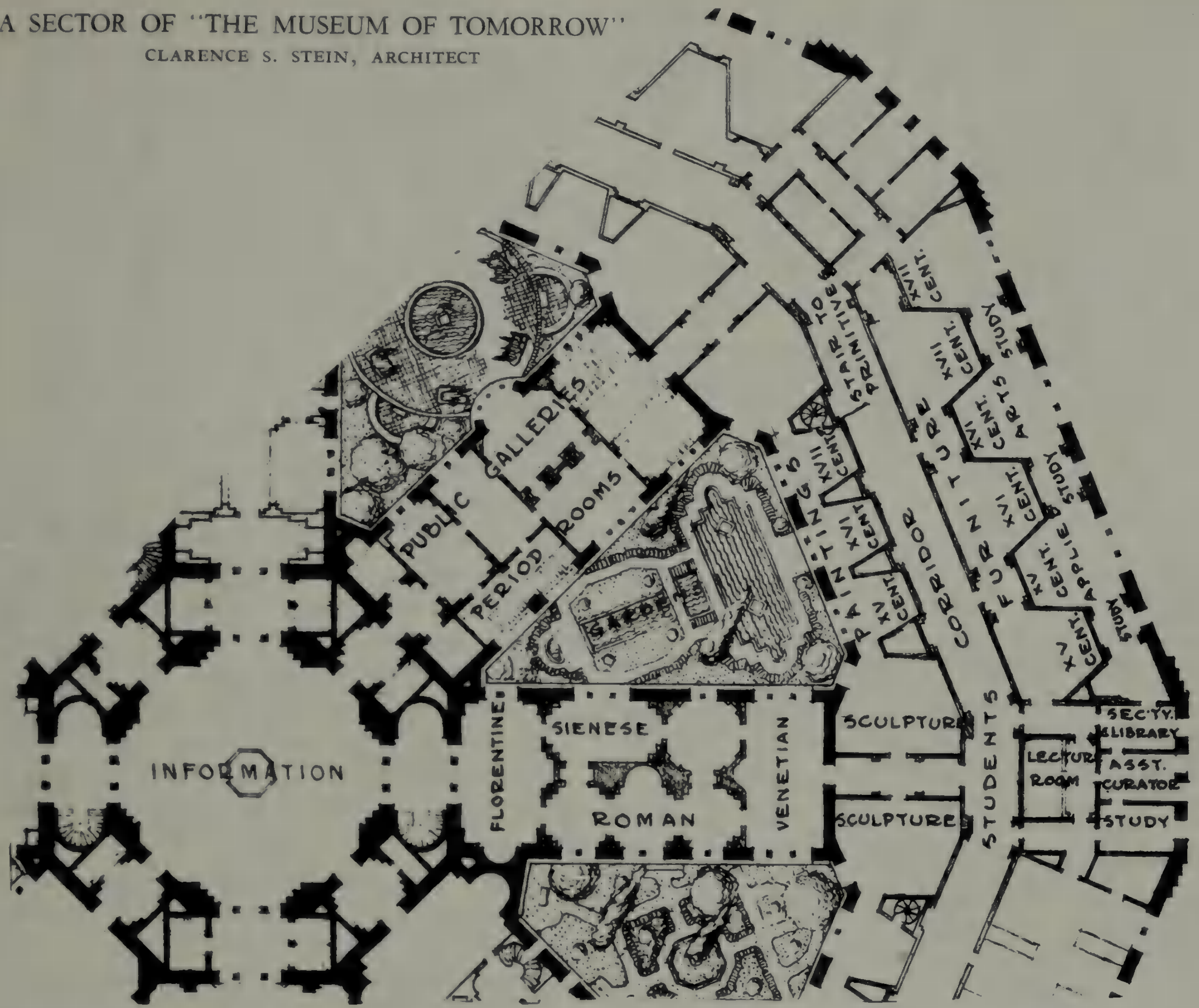
CLARENCE S. STEIN, ARCHITECT

From the main entrance the visitor goes through a Reception Hall to the hub of the building with its Information Booth before he commences to do any sightseeing. All collections are directly accessible from this hub without the interposition of any other collections. This condition applies to all floors, since all are served by the centrally placed elevators.

Note that the Auditorium is so placed that it can be used independently of the Museum.

A SECTOR OF "THE MUSEUM OF TOMORROW"

CLARENCE S. STEIN, ARCHITECT

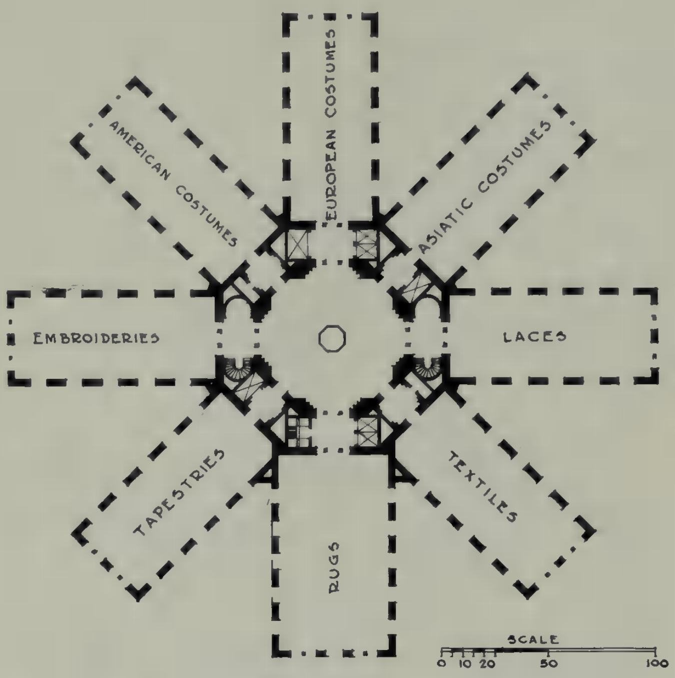


For the purpose of illustration it is assumed that exhibits will be grouped by periods or nationalities. The diagram shows galleries devoted to the Italian Renaissance. The visitor first enters the inspirational public gallery and if he then desires to make a closer study of the period, continues to the students' gallery in the periphery. The Assistant Curator's office and the Lecture Room are immediately accessible. Note that one spoke of the wheel is devoted to authentic period rooms and that a stairway leads down to the primitive art of the same nationality.

manner so as to facilitate research, comparison and study. There should be nothing hidden in dark storage places. Photographs of related works in other museums should be at hand, as should reference books. It should not be necessary to run from one end of the building to the other to compare two paintings or to look up reference materials. The student in a museum should be able to surround himself with material just as he would in a public library. The public's museum will be selective, the student's comprehensive.

This portion of the museum will also be a reserve collection: it will provide a reservoir from which the finer works can be moved from time to time to the inner popular museum.

The student's museum will encircle that of the public. Both will be entered from the same vestibule. The one radiates from the hub or core of the building, the other follows the rim. The spokes connect the two. The contents of the radiating wings are in every case directly related to that portion of the reference collection which is



STUDY COLLECTION ON ONE OF THE UPPER FLOORS
"THE MUSEUM OF TOMORROW"
CLARENCE S. STEIN, ARCHITECT

One of the prime services of the modern museum is that rendered by it to professional designers and to manufacturers.

found at its outer edge. If a student wishes, he may follow the development of an art in different countries at the same period by going around the circle. (He can always stop at the inspirational collections to see a few of the finer works in their historical setting.) Or, by climbing up little stairs, which in the study section will be low, like stacks in a library, he may follow a single country from period to period.

With the exception of certain studios and workshops set aside for those who are carrying on serious research work, the reserve collection will be open to all: the visitor who decides to make a closer study can follow the spokes of the wheel out to the rim as easily as the student can follow them in to the hub. He may be attracted by a picture of Titian's hung in the hall from a Venetian palace. The guardian can direct him to a series of rooms a few steps away where he can find all the other paintings of the Italian Renaissance that the museum contains, arranged according to place and school. He can continue around the circle and compare with these the works of the masters of the same period in Holland, Belgium, France and Germany, or he may prefer to note the influence of Giotto and the primitives. Their works he will find in the alcoves just above. In the same way he can follow the historical sequence of styles in sculpture or furniture, and the influence of one artist, period, school or nation upon another, by following the rooms on the other side of the encircling corridor. If he needs help or advice in his pilgrimage he will find the office of the curator or his assistant easily accessible and directly connected with the collection under his care. Although there will be a central library at the top of the tower, with a main reading room and stacks from which books may be distributed throughout the building, many reference books will be found in the smaller libraries used by the curators and instructors and those studying with them.

The lecture and conference rooms will also be decentralized throughout the student's museum. After attending a lecture illustrated by lantern slides or cinema films, instructor and student can visit the study and inspirational collections of the period described.

The main auditorium will be located so that it may be used in connection with the museum or separately when the museum is closed. Its entrance is next to that of the main museum and balances the entrance to the executive offices. However, there is direct access from it to the museum, close to the entrance for the general public and students.

Some of the study collections—fabrics, for example—are best organized by subjects. Such study collections will be placed in the upper stories of the central tower, as suggested by Mr. Lee Simonson.* Here the artisan and student, manufacturer and collector, will find assembled an organized collection of authentic objects, reference photographs and books. In addition to studios and workrooms there will be a few small meeting rooms, where groups interested in the progress of the arts may gather

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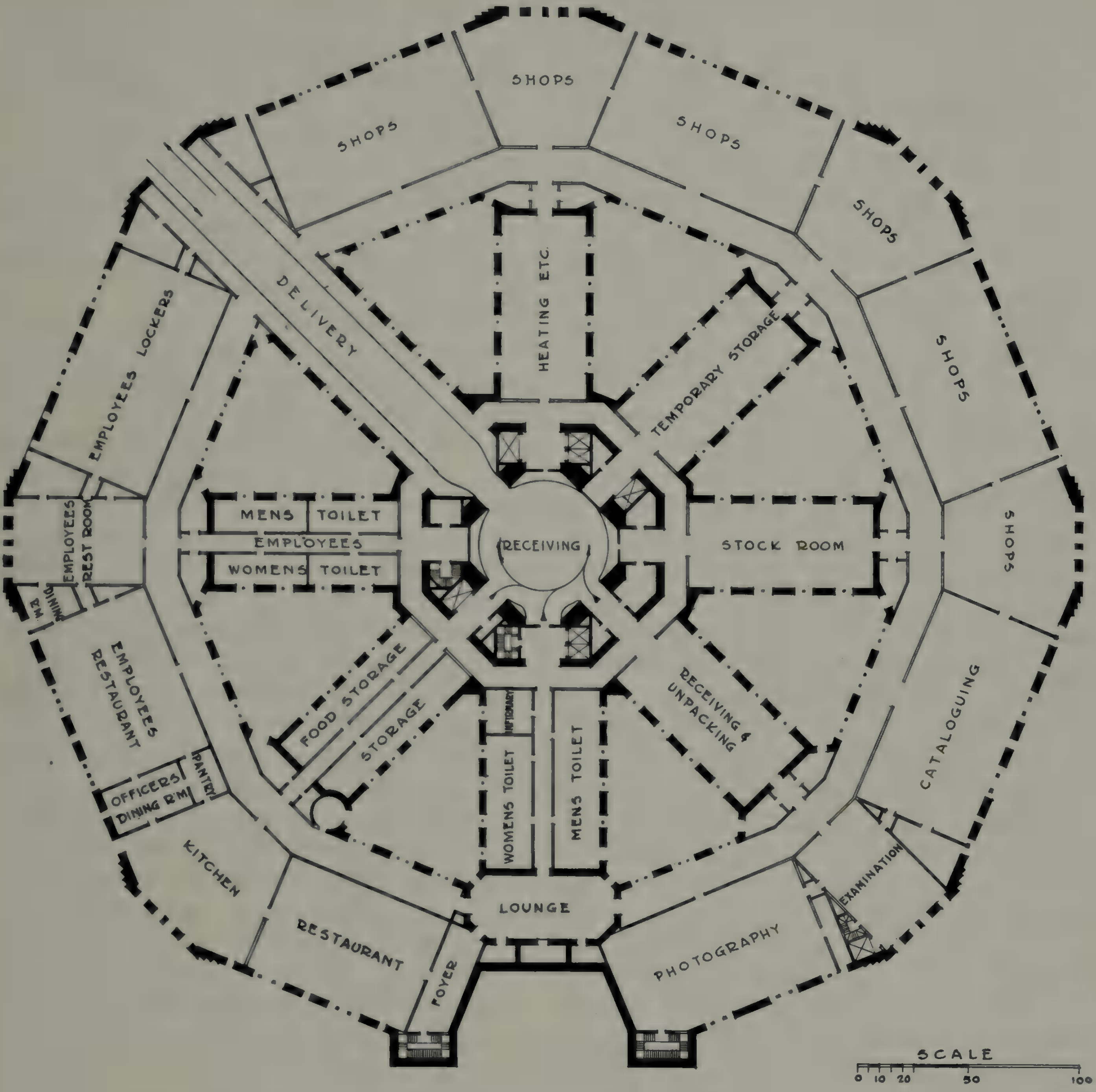
* "Skyscrapers for Museums." *American Mercury*, August, 1927.



BASEMENT FLOOR

"THE MUSEUM OF TOMORROW"

CLARENCE S. STEIN, ARCHITECT

The basement houses functions of three sorts: having to do with exhibition objects, employees, and the public.

The delivery road leads directly to the core of the building with its elevators. Exhibition objects are speedily routed through examination, photographing, cataloging, and repair departments, to temporary storage room and elevators. Museums require numerous workshops not only for repairs to objects but for upkeep of the building.

The public restaurant, rest rooms, and infirmary are grouped close to the main entrance. They can be reached directly from the outside without any necessity for opening other parts of the Museum.

socially or for discussion or to exhibit small groups of studies, projects or completed works, as in a club. The museum of tomorrow will not only preserve the art of the past but will serve as the center of the art of today.

•

MUSEUM SERVICES:

Every museum requires many services that cannot be classified under the functions of exhibition or education. In most of our museums the realization of many of these needs has come as an afterthought. The museum has not been planned to care for these services in a logical manner. The service portion of the museum of tomorrow will be planned as integrally as in a modern factory.

The executive and administrative offices should be easily accessible to the public. They will be placed in a group with a separate entrance from the outside, in direct connection with the main public entrance (see plan, p. 11).

The basement will house the greater part of the service functions of the museum. These can be divided into three parts, having to do with housekeeping (employees), with objects for exhibition, and with the general public.

The service road will lead through the building to the large space underneath the central rotunda. From here new acquisitions can be delivered directly to the receiving room and there unpacked, and then placed in well-lighted examination rooms, directly below the directors' and trustees' rooms, and accessible to them. On either side of the examination room will be departments for photographing and labelling. Thereafter, if repairs are necessary, the objects will be taken to one of several shops.

•

FLEXIBILITY

Most of our museum buildings are antiquated; they do not fit even the method of exhibition of today. I fear that if the same sort of buildings were replanned and rebuilt now, with all our present understanding and past experience, they would be out of date within a very short period.

Even in the Philadelphia Museum, where Fiske Kimball is performing the separation of the collections devoted to education and to appreciation, the structural shell was never intended for this purpose. In old buildings progress of arrangement is crippled by the fixed fenestration and inflexible location of interior walls. Some type of structure must be developed that will be flexible. The partitions should be movable, like screens or office partitions, so as to form different shapes and kinds of enclosures. At the same time the exterior wall should be capable of rearrangement so as to make possible the relocation of windows. If we followed these requirements through logically instead of letting our museums consist of more or less unbroken, solid exterior walls and glass roofs, we should do away entirely with the impossible illumination of skylights and build our exterior walls of some type of glass brick or tile behind which would be placed the temporary walls with the fenestration actually required for the best illumination of the exhibits.

MASS-PRODUCTION AND THE MODERN HOUSE

BY LEWIS MUMFORD

During the last hundred and fifty years a great change has taken place in architecture. This change has nothing to do with the questions of superficial esthetics that agitated the architectural world: the quarrels between the classicists and the medievalists or between the traditionalists and the modernists are all meaningless in terms of it. I refer to the process whereby manufacture has step by step taken the place of the art of building, and all the minor processes of construction have shifted from the job itself to the factory.

How far this process has gone everyone is aware who has watched the composition of a building, and who knows how suddenly the whole work would stop if the architect were forced to design or specify with any completeness the hundred different parts, materials, and fixtures he draws from Sweet's Catalog. But what are the implications of this process? What results must it have on the status of the architect and the place of architecture in civilization? What further developments may we look forward to on the present paths: what alternatives suggest themselves?

Some of these questions can be answered: others will lead us to push beyond the current premises upon which the discussion of mass production and architecture is based.

II

By an ironic accident, the first use of fabricated parts in a building seems to have been ornamental: the plaster mouldings of the eighteenth century were introduced before the Franklin stove: but the age of invention ushered in a whole series of technical devices designed to increase the comfort or the efficiency of the dwelling house, and along with these improvements went a shift from handicraft to machine production. There are country districts in the United States where, until a few years ago, the kitchen sink would have been made of sheet zinc fitted over a box made by the carpenter, or where the ice-box might have been constructed in the same way. In the main, however, the shift was steady and inexorable: steam-heating, gas-lighting, electricity, baths, toilets, refrigerators, to say nothing of radio-connections and garages, have all led to the industrialization of architecture. Plaster, jig-saw, and cast-iron ornament, the first spontaneous gifts of industrialism, all happily diminished; but the technical improvements remained and multiplied.

In the great run of modern building, except in part the country homes of the rich, mass-manufacture has taken the place of local handicraft. The latter has remained in two places: the construction of the physical shell itself, and the assemblage of the individual parts

Now, this change was coincident with the withdrawal of the architect from the grand body of building during the early industrial period. The new factories and bridges and railroad stations were largely the work of engineers, while the great mass of private dwellings became the province of the speculative jerry-builder who, with a few stereotyped plans, created the dingy purlieus of all our large cities. The radical change that had taken place passed almost unnoticed, until during the last fifteen or twenty years the architect was called in to design small houses for industrial villages. He was then confronted with two brute facts: if he designed houses for industrial workers in the fashion that he did for the upper middle classes, it turned out that the costs were so high that only the middle classes could afford to live in them: that was the fate, for example, of Forest Hills, L. I. On the other hand, when he accepted the price limitations laid down by the industrial corporation, or, as in Europe, the municipal housing scheme, he suddenly discovered that he was no longer a free man.

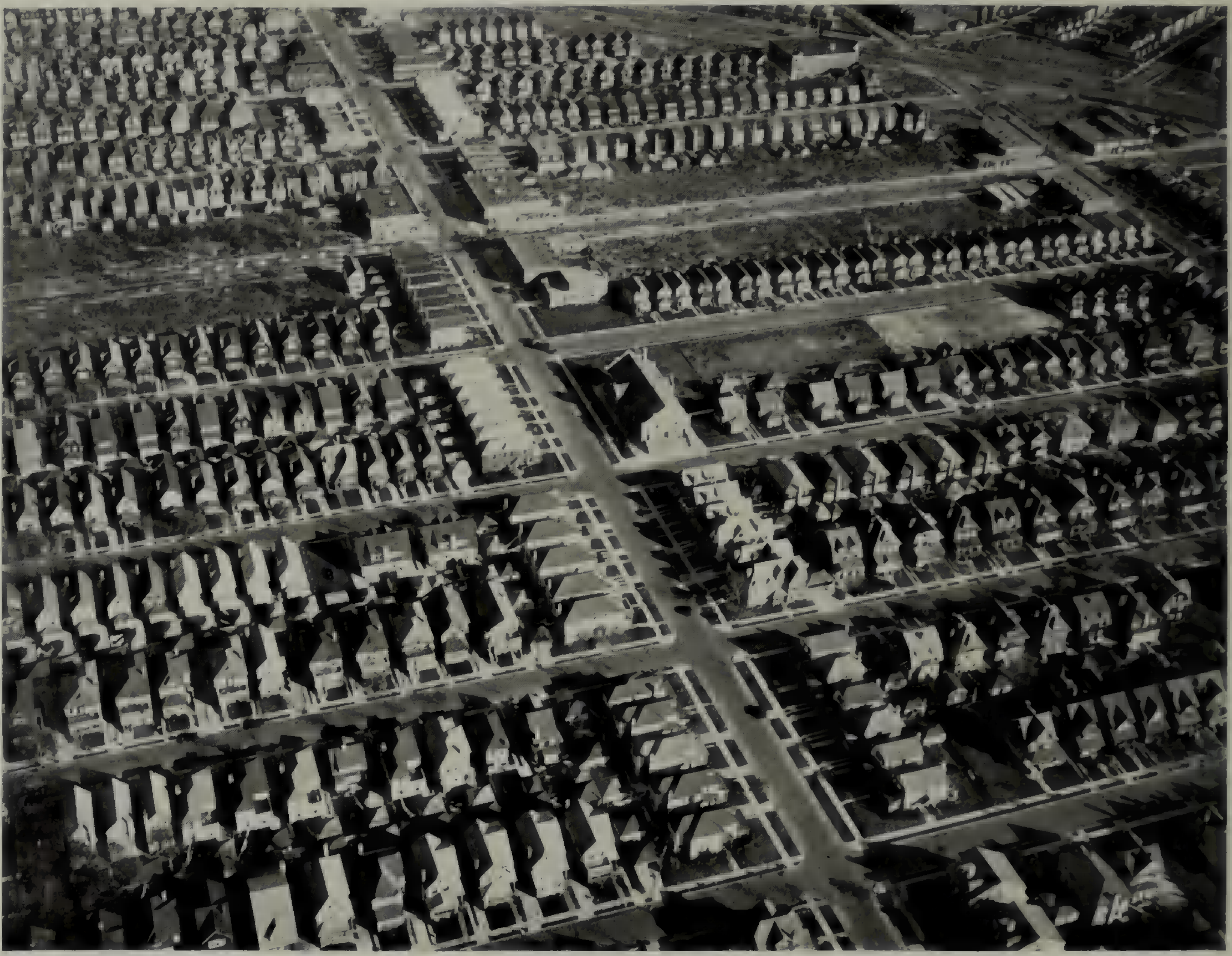


Photo. Fairchild Aerial Surveys, Inc.

ON THE WAY TOWARD STANDARDIZATION: A SECTOR OF BROOKLYN

The jerry-builder replacing the architect. Not only are stereotypes frequently repeated, but every house is largely an *assembly* of standard parts from the factory. Bathrooms have come; gardens have gone. Every house is but the visible shoot upon a great underground root mechanism, constituting "the land and its improvement."

Every variation he wished to introduce which departed from current practice was prohibitive in cost: his design was in fact little more than a composition of standardized patterns and manufactured articles. The elements were no longer under the architect's control; for the carpenter on the job could not construct a kitchen cabinet as well or as cheaply as the factory, nor had he spent so much time in finding out exactly what compartments and divisions the housewife preferred. As for windows, doors, bathroom equipment, the architect either had to accept them as they came from the factory, or he had to do without them altogether.

III

Needless to say, this revolutionary change had come about without any genuine renovation in design, and without any attempt to overcome the difficulties that the increase of manufactured articles brought with it. The chief of these difficulties, as Mr. Henry Wright was perhaps the first to point out, was that the building proper, without being cheaper in its own right, accounted for only forty-five to sixty per cent of the total cost, whereas a hundred years before it had represented, with its decoration and ornament, about ninety per cent of the total cost. Some accommodation to this condition was made; but the adjust-

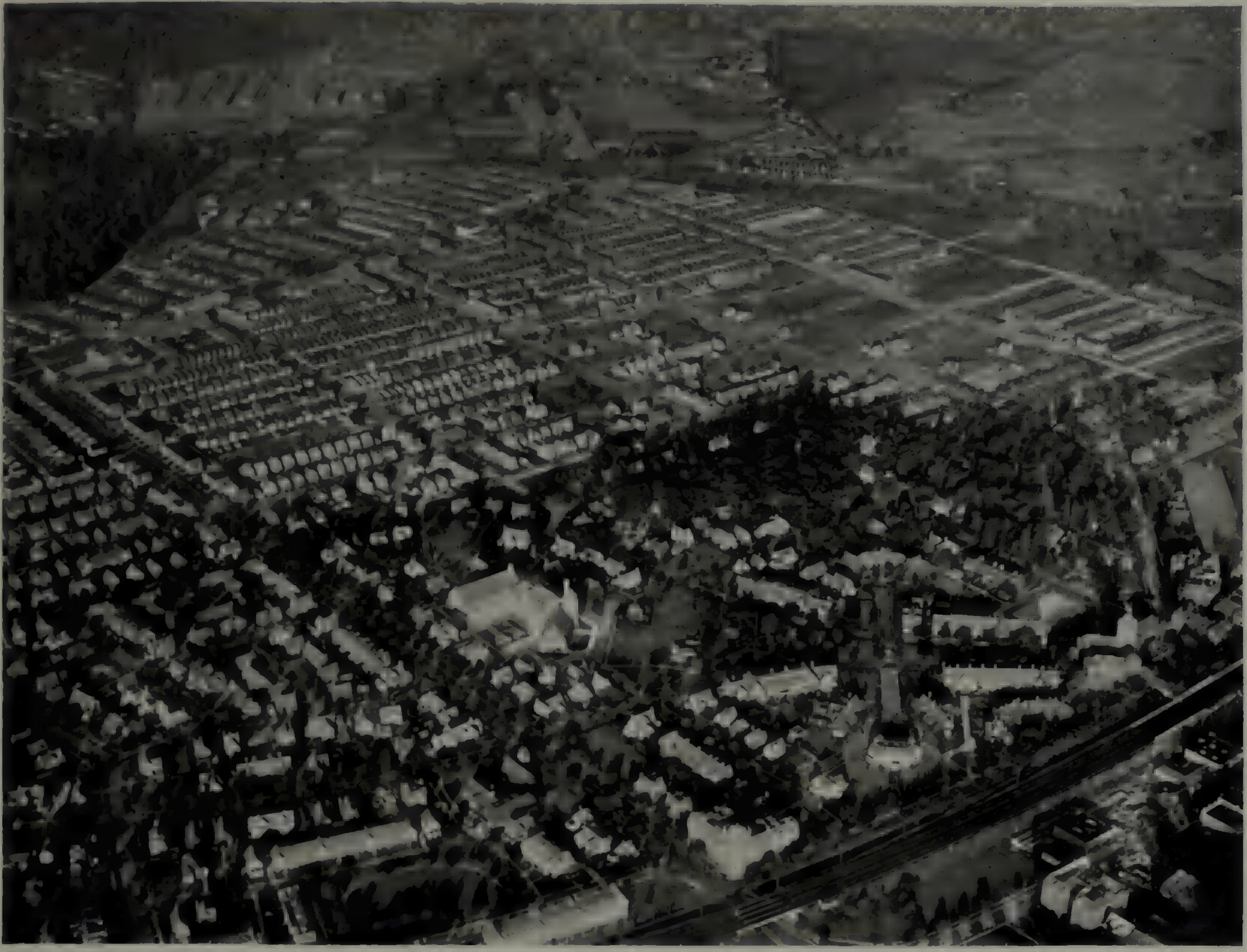


Photo. Fairchild Aerial Surveys, Inc.

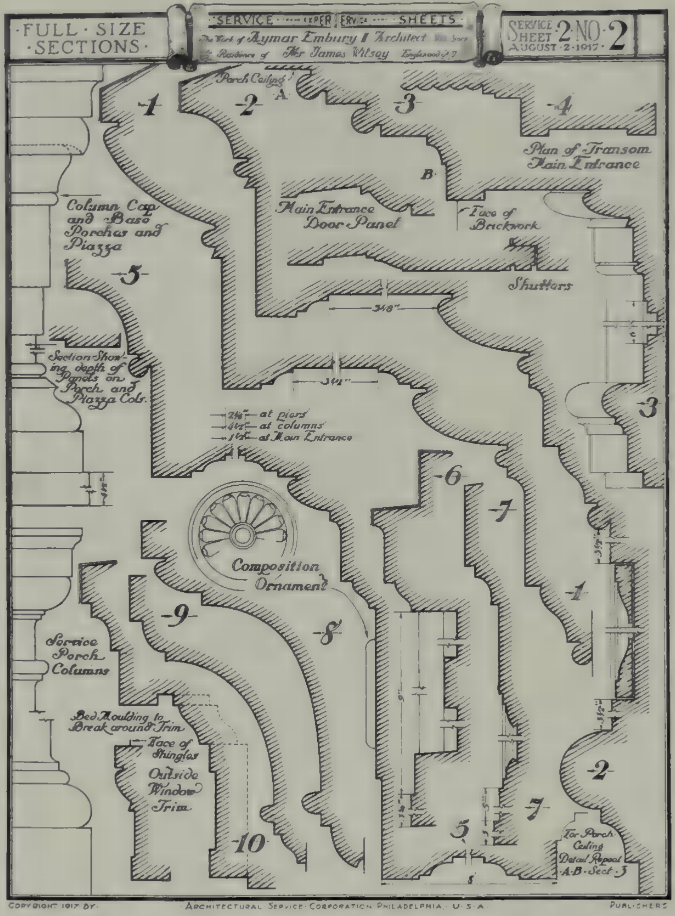
Grosvenor Atterbury, Architect

THE ARCHITECT'S ATTEMPT TO INDIVIDUALIZE AN INDUSTRIAL VILLAGE: FOREST HILLS

An attempt that failed. The cost of spaciousness and individual design was too high for workers and the houses are now occupied by the middle classes. To the rear is seen the invasion of the jerry-building that must serve the poorer man who wishes to live in a "free-standing" house.

ment was a blind and fumbling one: now it came as jerry-building, a general cheapening of materials and workmanship, again it came as smaller rooms or fewer rooms per family, or finally, it came as an abandonment of handicraft on the remaining parts of the building, and the increase of ready-made equipment. Decoration had not so much vanished by itself, for lack of artistic talent, still less because of any doctrinaire prejudice against it: it had rather been absorbed, or at all events transformed into mechanical fixtures. The new costs of finance, mechanical fixtures, utilities, had to be met at some point in the design. Short of a proportional rise in the real income of wage-earners, there was no way of cementing the old requirements and the new in a single building.

In a word, building has shrunk, manufacture has expanded. One cannot suppose that this process will stop short at the shell. Apart from the fact that this has already been partly conquered—as yet, however, with no appreciable saving—in the mail-order wooden house, or in the sheet-iron garage, who doubts that the manufacturers of steel, aluminum or asbestos blocks, if not the large-scale motor manufacturers, looking for a new outlet for a market glutted with cars, will finally produce a light transportable shell, whose sections will be set up easily by unskilled labor? It would not be difficult to describe such a house: indeed, Mr. Buckminster Fuller in Chicago, and the Brothers Rasch in Germany have already gone a step beyond this. The chief differ-


·FULL · SIZE ·SECTIONS·
SERVICE SHEETS
The Work of Aymar Embury II Architect
Residence of Mr. James Wilsoy
SERVICE SHEET 2 NO·2
AUGUST·2·1917·
Porch Ceiling
A
B
-1-
-2-
-3-
-4-
-5-
-6-
-7-
-8-
-9-
-10-
Plan of Transom Main Entrance
Main Entrance Door Panel
Face of Brickwork
Shutters
Column Cap and Base Porches and Piazza
Section Showing depth of Panels on Porch and Piazza Cols.
3/8"
3 1/2"
2 1/8" at piers
4 1/2" at columns
1 1/2" at Main Entrance
Composition Ornament
Service Porch Columns
Bed Moulding to Break around Trim
Face of Shingles
Outside Window Trim
For Porch Ceiling Detail Repeat A·B·Sect·3
COPYRIGHT 1917 BY · ARCHITECTURAL SERVICE CORPORATION PHILADELPHIA, U·S·A· PUBLISHERS

ALL THIS FOR A SINGLE CUSTOM-BUILT HOUSE

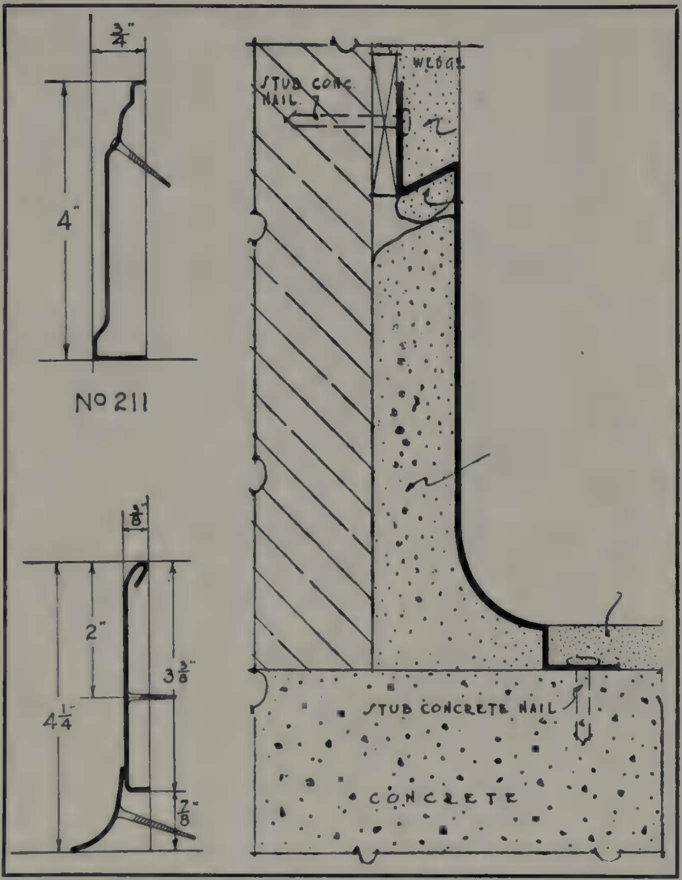
1917: The pride of the architect lay in giving every house, and every possible part of every house, its individual decorative treatment, specially full-sized and specially made. The effort was directed at what was very accurately named "enrichment." (House of Mr. James Wilsoy, Aymar Embury II, Architect.)

ence between the factory-manufactured house and the current product of the jerry-builder in Flatbush or West Philadelphia would be that in the first case the design would possibly bear some living relation to the elements out of which it is composed. The mass-house would probably be placed on a platform, if not on a pedestal, in order to provide garage space and avoid the expensive cellar; the plans would be standardized; the pipes and fittings and fixtures would be integral with the walls and ceilings, joined together by a turn of the wrench; and the use of light insulating materials would both facilitate transportation and permit the design of large windows which would otherwise, in cold weather, make a great drain on the heating system.

What would be the advantages of the completely manufactured house? There are many potential ones. First of all, the mass-house, like the motor car, will be able to call to its design and construction a corps of experts, sanitary engineers, heating engineers, hygienists, to say nothing of professors of domestic science, who will have their minds focussed, not upon solving indifferently an indeterminate number of problems, but upon getting a perfect solution for a fixed and limited problem. These research workers will have the opportunity to deal with fundamental mechanical and biological facts, without the distraction of attempting to compose these facts into a traditional frame, conceived when industry and family life were on an entirely different basis, and when the inventions of the last century were still but vague grandiose dreams in the minds of Utopians like Leonardo and Johann Andreae.

The introduction of this council of experts would undoubtedly hasten the rationalization of the modern house. A dozen standard plans, with all minor deviations ruled out, would probably take the place of the competitive chaos that provides our more traditional forms of monotony and squalor, or, as in the well-to-do suburb, of standardized "variety" and fake elegance. No one would be able to pretend that individuality and personality are achieved by meaningless departures on the drafting board from standard dimensions: once the mechanical requirements were granted, an equally mechanical solution would follow. The charm of good building, the charm due to the carpenter's or the mason's feeling for his material and site, would disappear; but as compensation there would be the austere clarity of good machinery; and since this charm is already a sentimental memory in most of our building, it is an illusion rather than a reality that would be destroyed. Undoubtedly the result would be "hard"; but such hardness is surely preferable to the spurious "softness" of imitation half-timbers, imitation slates, and imitation fires; and it would constitute a real improvement over the actual quarters in which a great part of the population now live.

There is no need to go here into the various technical improvements that may be possible in the mass-house. It is enough to assume that such matters as artificial cooling and heating, the removal of dust, and the utilization of sunlight would receive competent attention, and it is even possible that entirely untried methods, such as the heating of walls by electric grids, or complete insulation from outside air would be tested, if not incorporated in the mass-house. Such dwellings would represent a real advance from the standpoint of hygiene and constructive soundness; and since a good part of our population needs to be re-housed, its present quarters being unsanitary, crowded, vile, ugly, and entirely out of key with the best features in the modern environment, the mass-house holds out, on the surface, very attractive promises. Does the architect shrink from the prospect? He had better not. As a profession he has permitted something far worse than the scientifically designed mass-house, namely the unscientific one of the jerry-builder, to appear; and since he has shown as yet no capacity to face or master the real problem of housing, he cannot in all conscience turn away from this spectacle.



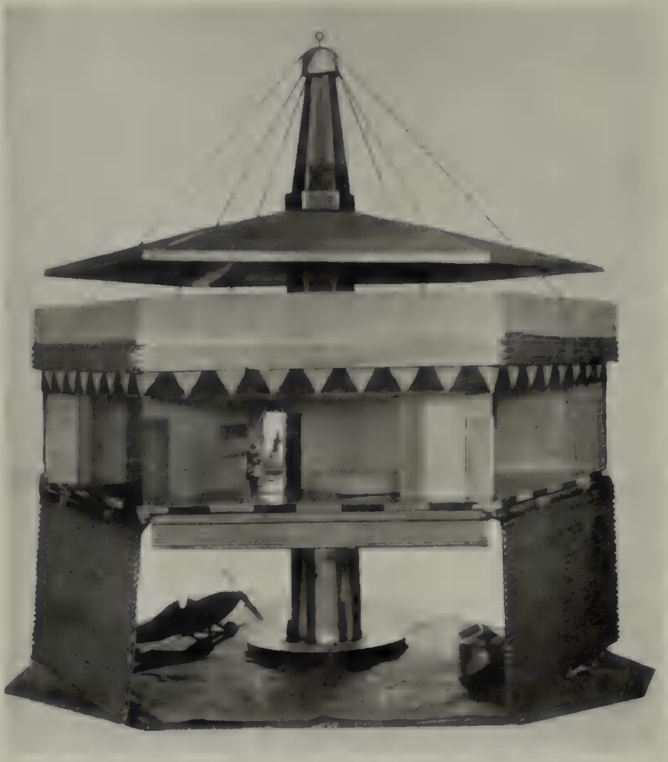
STANDARD PARTS FOR A THOUSAND BUILDINGS

1930: Showing the evolution of a metal baseboard from imitative decoration toward impeccable utility and clarity. Decoration has not vanished by itself because of prejudice against it: rather it has been absorbed or transformed into mechanical fixtures.

IV

Let us grant, then, the mechanical advantages of the mass-house; and along with this its practicability. We must now ask another question: to what extent would the mass-production of such houses be a solution of the housing problem, and how far would this form of manufacture meet all the needs that are involved in the dwelling house and its communal setting? Those who talk about the benefits of mass-production have been a little misled, I think, by the spectacular success of this method in creating cheap motor cars; and I believe they have not sufficiently taken into account some of its correlative defects. Let us consider a few of these.

First of all: the great attraction of the manufactured house is the promise not only of efficiency but of cheapness, due to the competitive production of houses in large quantities. It is doubtful if this will prove to be a great element in reducing the cost of housing. The reason is simple. The shell of the building is not the largest element in the cost; the cost of money, the rent of land, the cost of utilities, including streets, mains, sewers and sewage disposal plants, are among the major items on the bill. The two new spots where mass production would take the place of present methods, namely, in the shell itself, and in the assemblage of the parts, offer only a minor field for reductions. To cut the cost of the shell in half is to lower the cost of the house a bare ten per cent. The New York State Housing and Regional Planning Commission has shown that the lowering of the interest rate one per cent would effect as great a reduction; and the lowering of it to the level justified by the safety and dura-



MODEL OF THE "DYMAXION" HOUSE
BUCKMINSTER FULLER, DESIGNER*

bility of housing investments would reduce the costs far more drastically than the most ingenious cheese-paring on the structure.

Moreover, with respect to the other parts of the house, the fixtures, the mechanical apparatus, the finish, it remains true that while slight economies are possible through further standardization, a good part of these items is already produced by mass-methods —and most of the possible economies have been wrung out. Novelties in plan or design, such as those suggested in the Dymaxion house, should not obscure the fact that the great change in the shell is only a little change in the building as a whole. For lack of proper cost accounting our experimental architects have been butting their heads against this solid wall for years; but there is no reason why they should continue. Land, manufactured utilities, site-improvements, and finance call for a greater share of the cost than the "building" and labor. Mass production will not remedy this. To use cess-pools instead of sewers, artesian wells instead of a communal water system, and cheap farming land instead of urban land, as some of the advocates of the manufactured house have suggested, is merely to camouflage the problem: and it is more than a little naive: for such expedients are temporary dodges, which may occasionally be favored by a sandy soil or inaccessibility to traffic, but they cannot count for two pins in any comprehensive and universal solution of the housing problem. There are many districts where an artesian well would cost as much as the house itself; and except in a communist society there are no spots on the earth where the Law of Rent is not operative—so that any large movement towards the open land, such as is now taking place fifty miles from New York, is immediately recorded in a conversion of farmland into building lots, with a swift rise in price. In short: the manufactured house cannot escape its proper site costs and its communal responsibilities.

The second hole in the program is the fact that mass-production brings with it the necessity for a continuous turnover. When mass-production is applied to objects that wear out rapidly, like shoes or rubber tires, the method may be socially valuable, although the late Thorstein Veblen has shown that some of these potential economies are nullified by the commercial habit of weakening the materials in order to hasten the pace of destruction. When, however, mass methods are applied to relatively durable goods like furniture or houses, there is great danger that once the original market is supplied, replacements will not have to be made with sufficient frequency to keep the original plant running. Our manufacturers of furniture and motors are driven desperately to invent new fashions in order to hasten the moment of obsolescence; beyond a certain point, technical improvements take second place and stylistic flourishes enter. It will be hard enough, in the depraved state of middle class taste, to keep our mass houses from being styled in some archaic fashion, pseudo-Spanish or pseudo-Colonial, as the fad of the day may be; and once mechanical improvements bring diminishing returns this danger will be a grave one.

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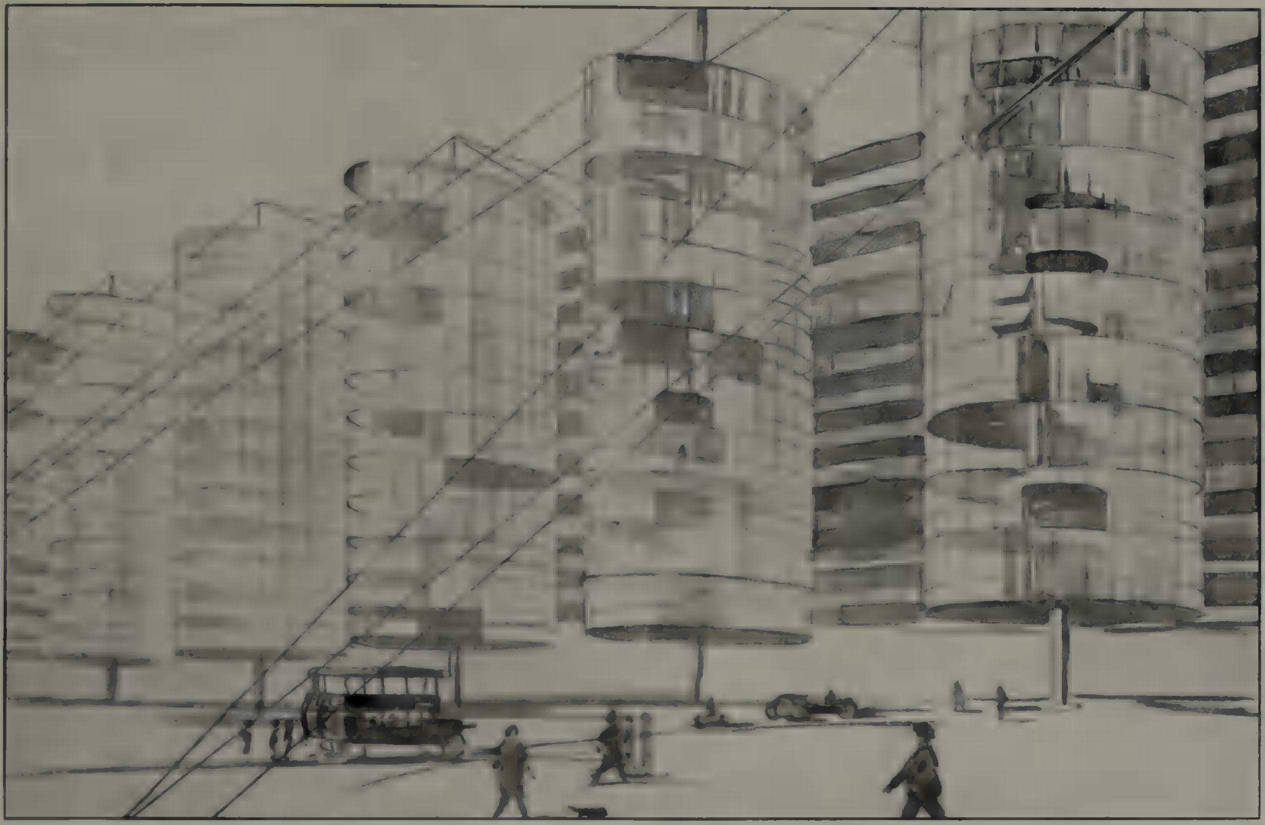
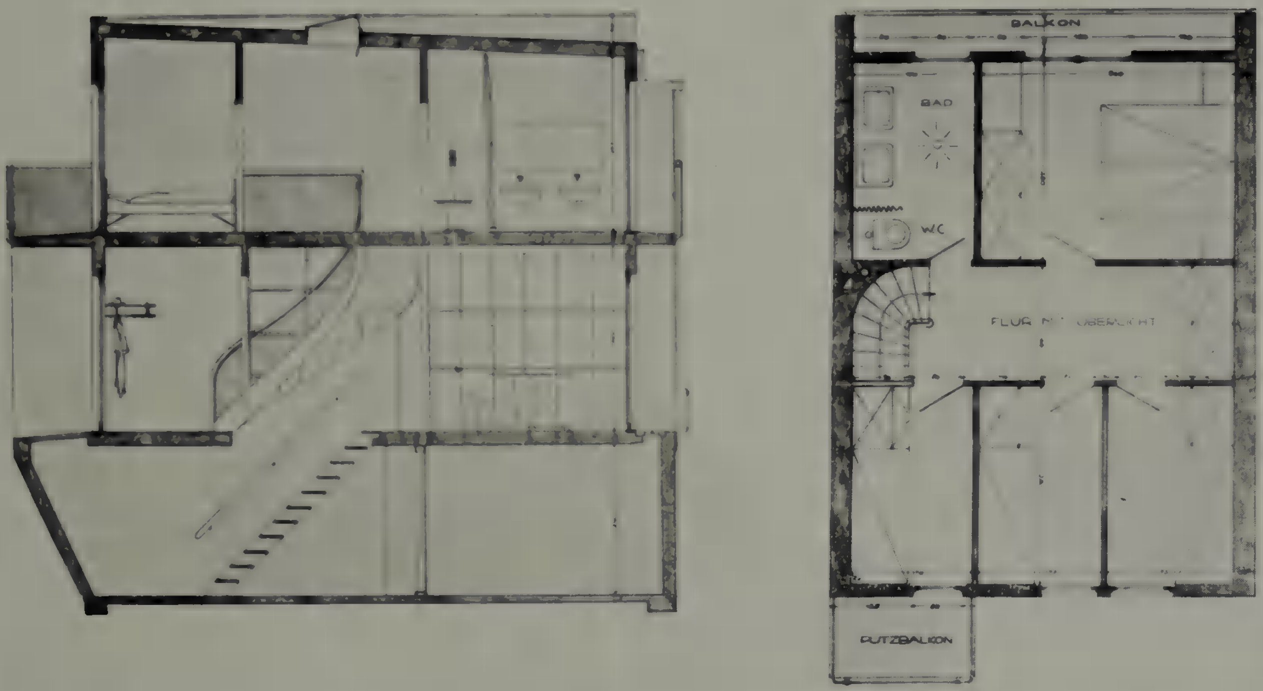
* Walls (no windows) of transparent casein; inflated duralumin floors; heat, light, refrigeration supplied to it individually, through central mast, by Diesel engine; water from well.



MASS-PRODUCTION APARTMENT HOUSES HUNG ON MASTS

THE BROTHERS RASCH, GERMANY

Two rows of hollow masts with a set of passages between. The ground is clear. Masts hold one another in position by system of cables; anchored by cables; floors hung on cables. Proposed in 1928



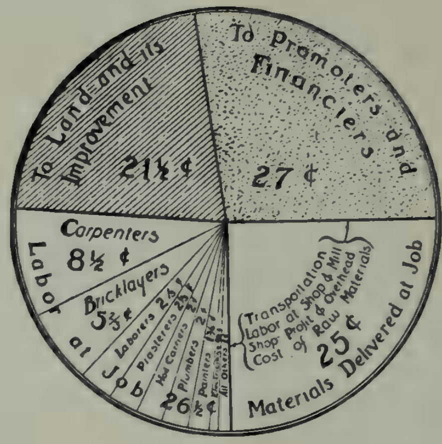
FROM ANOTHER CONTINUOUS ROW (STEEL HOUSES RESTING ON THE GROUND)

THE BROTHERS RASCH, GERMANY

There is still another defect in the manufactured house, just the opposite of the tendency to foist new style, in order to increase the turnover. One might call this the model T dilemma. Mass-production, just because it involves the utmost specialization in labor-saving machinery and the careful interlinkage of chain processes, suffers, as I have pointed out elsewhere, from rigidity, from premature standardization. When the cheapening of the cost is the main object, mass production tends to prolong the life of designs which should be refurbished. In the case of the dwelling house, the continuance of obsolete models would possibly be as serious as the rapid alterations of style; and it is hard to see how mass production can avoid either one or the other horn of this dilemma.

V

What, then, is the conclusion? So far as the manufactured house would base its claim upon its social value, that is, upon the possibility of lowering the cost of housing to the point where new and efficient dwellings could be afforded by the owners of Ford cars, its promises are highly dubious. Granting every possible efficiency in design or manufacture, the mass-house, without any site attachments, would still represent an expenditure of from six to ten times the amount invested in automobiles of similar grade; and this leaves us pretty much in our present dilemma. The new houses might well be better than the present ones—they could scarcely be worse. But, if better, they would not be radically cheaper, and since a new cost, a cost that is excessive in the motor industry, namely competitive salesmanship, would be introduced, the final results promise nothing for the solution of our real housing problem—the housing of the lower half of our income groups, and particularly, of our unskilled workers. The manufactured house no more faces this problem than the semi-manufactured house that we know today.



"A LARGE SAVING IN THE SHELL IS A SMALL SAVING IN THE FINAL HOUSE"

A little more than half of the building cost goes for construction itself. The shaded areas in this chart of the construction dollar represent factors of land and financing that mass production cannot very much affect

Chart from *Primer of Housing*, by Arthur C. Holden and others, Workers' Education Bureau Press

This does not mean that the processes of manufacture will not continue to invade the modern house; nor does it mean that the architect's present position in relation to the problem is a happy one. The question is whether he is able to devise an approach to the housing problem and to house design which will bring with it all the efficiencies promised by the Brothers Rasch or by Mr. Buckminster Fuller, and which will at the same time give scope to the particular art and technique of which he is master. Is there perhaps a more radical approach to the problem of housing than the engineer and the mechanically-minded architect have conceived? I think there is; for though Mr. Fuller for example believes that he has swept aside all traditional tags in dealing with the house, and has faced its design with inexorable rigor, he has kept, with charming unconsciousness, the most traditional and sentimental tag of all, namely, the free-standing individual house. If we are thorough enough in our thinking to throw that prejudice aside, too, we may, I suspect, still find a place for the architect in modern civilization. I shall deal with the alternative to the purely mechanical solution of our problem in a second article.

PORTFOLIO
OF
CURRENT ARCHITECTURE

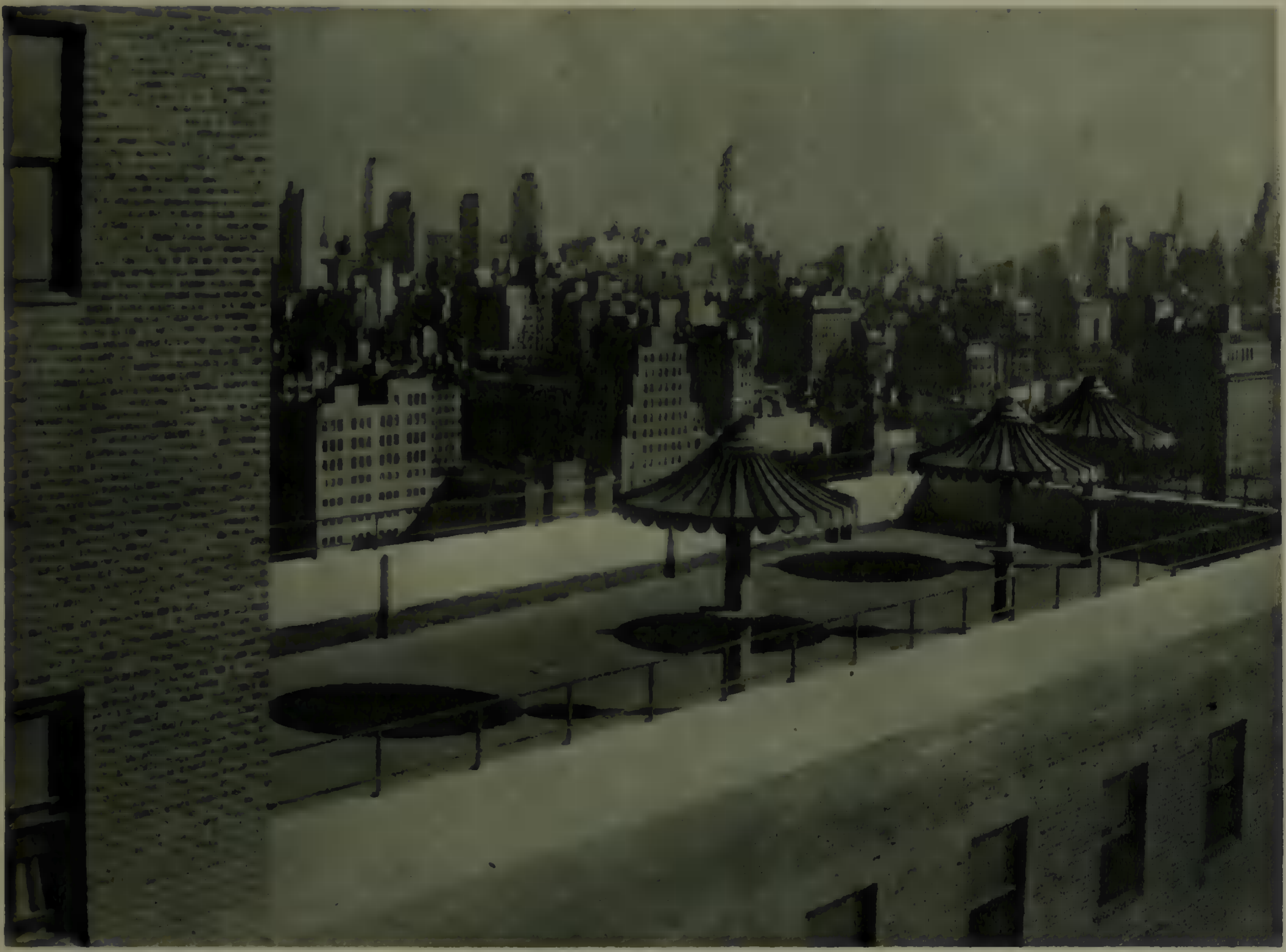
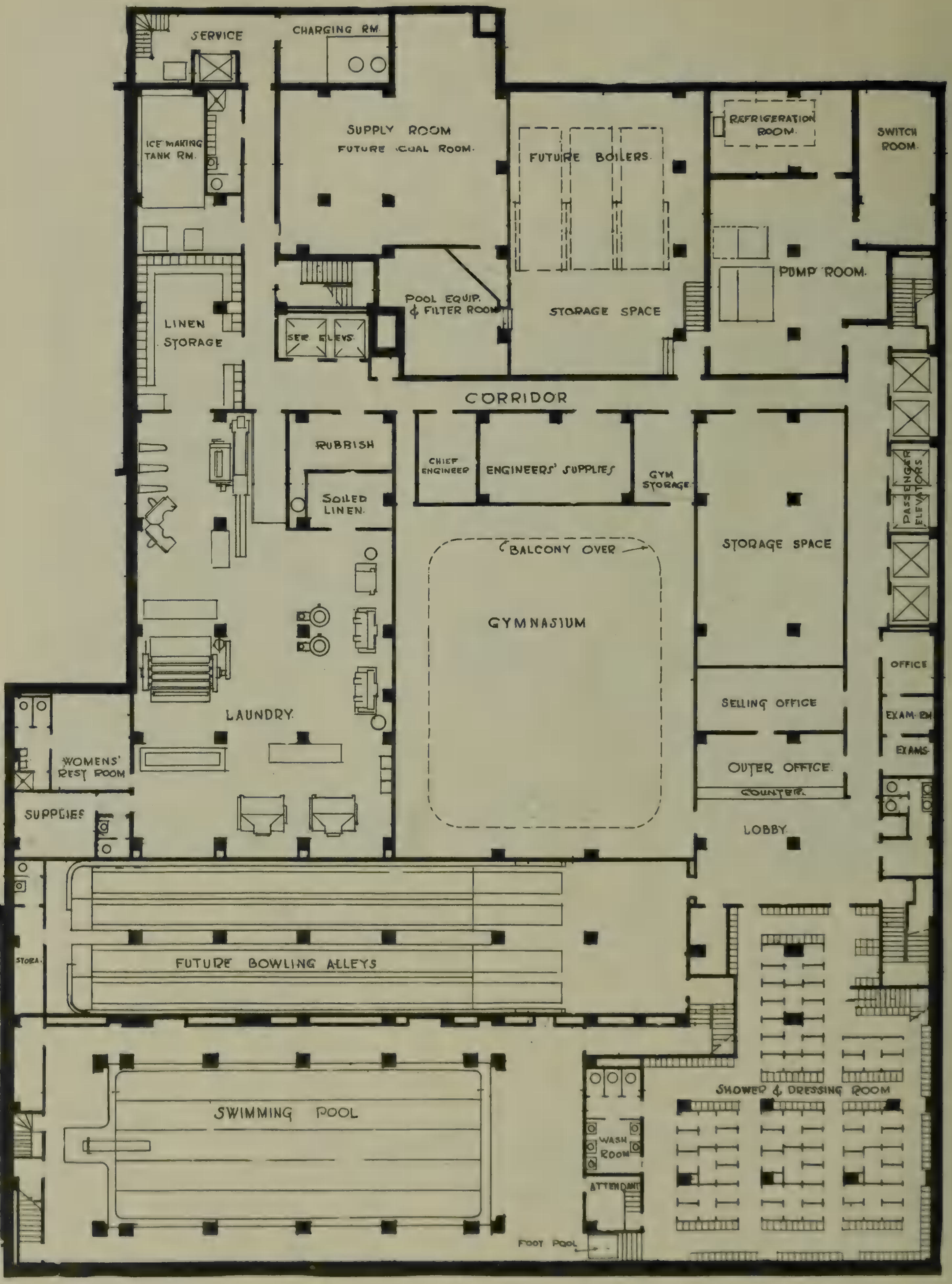


Photo. Anton Bruehl

Vent Pipes Carrying Shades
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

FEATURING
AMERICAN WOMEN'S ASSOCIATION BUILDING
LAWRENCE PARK PROPERTIES
KENT COMMUNITY HOUSE

(Note: A description of the American Women's Association Building will be found on page 37)



Sub-Basement Plan
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

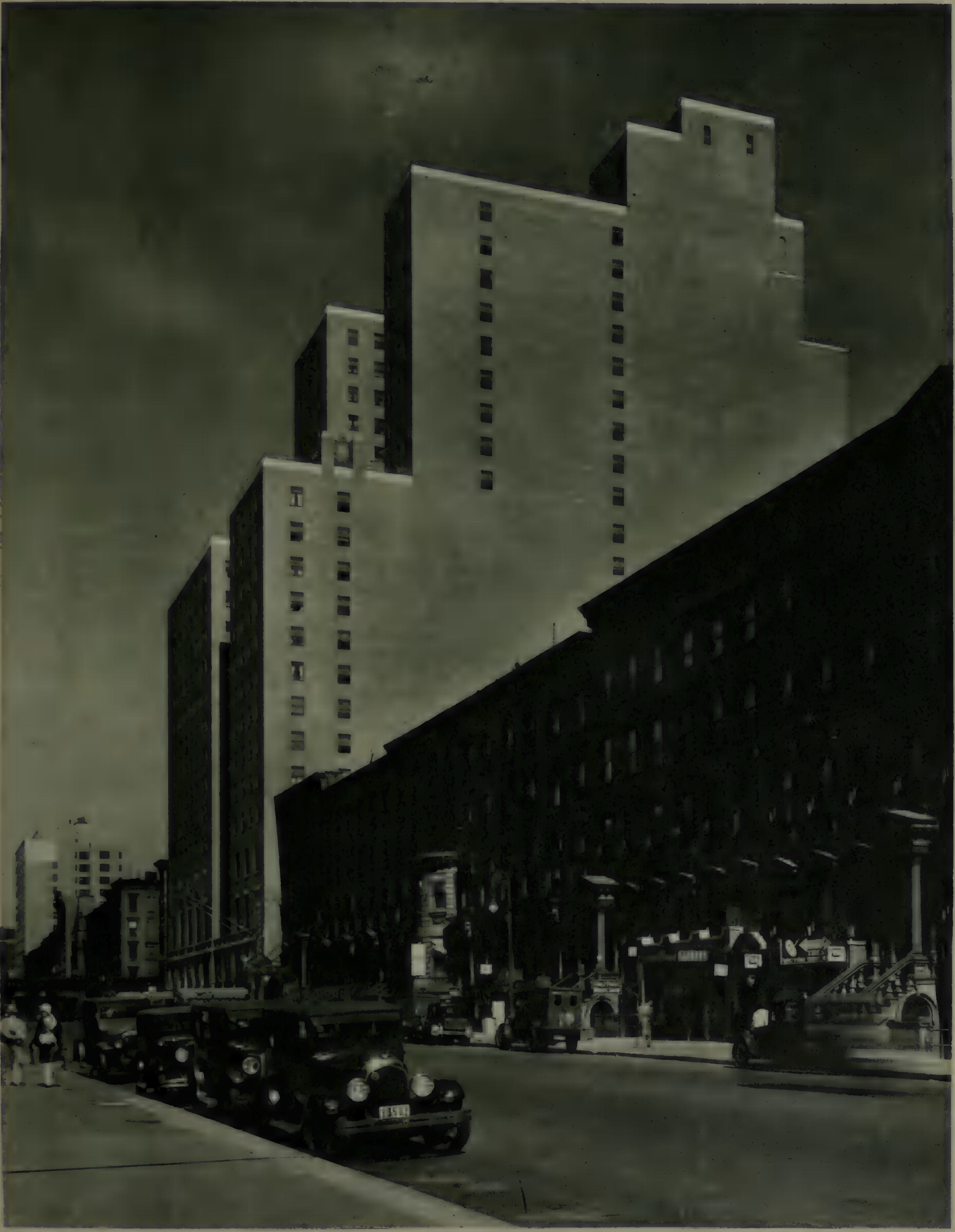
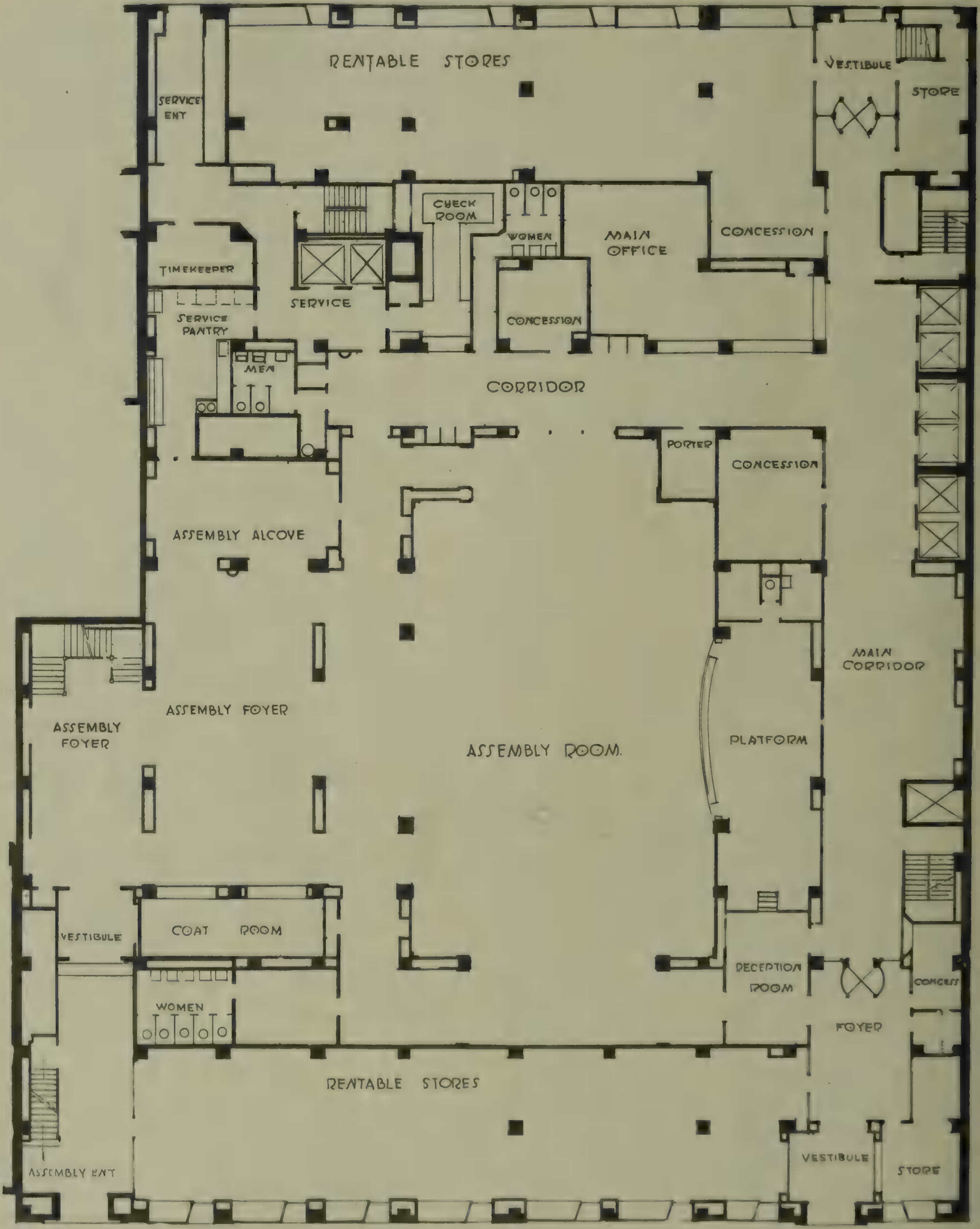


Photo. Van Anda

General View
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT



Main Floor Plan
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

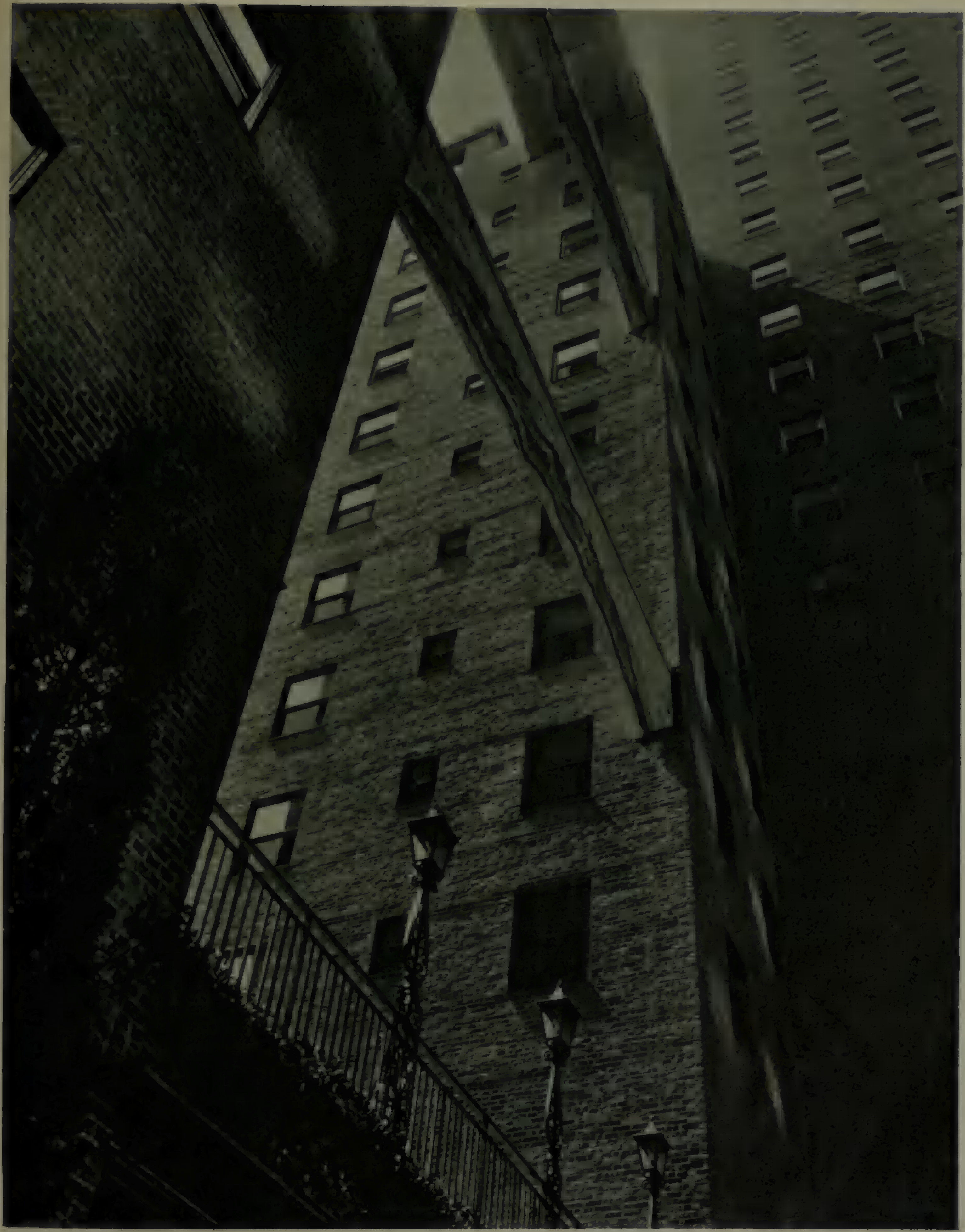
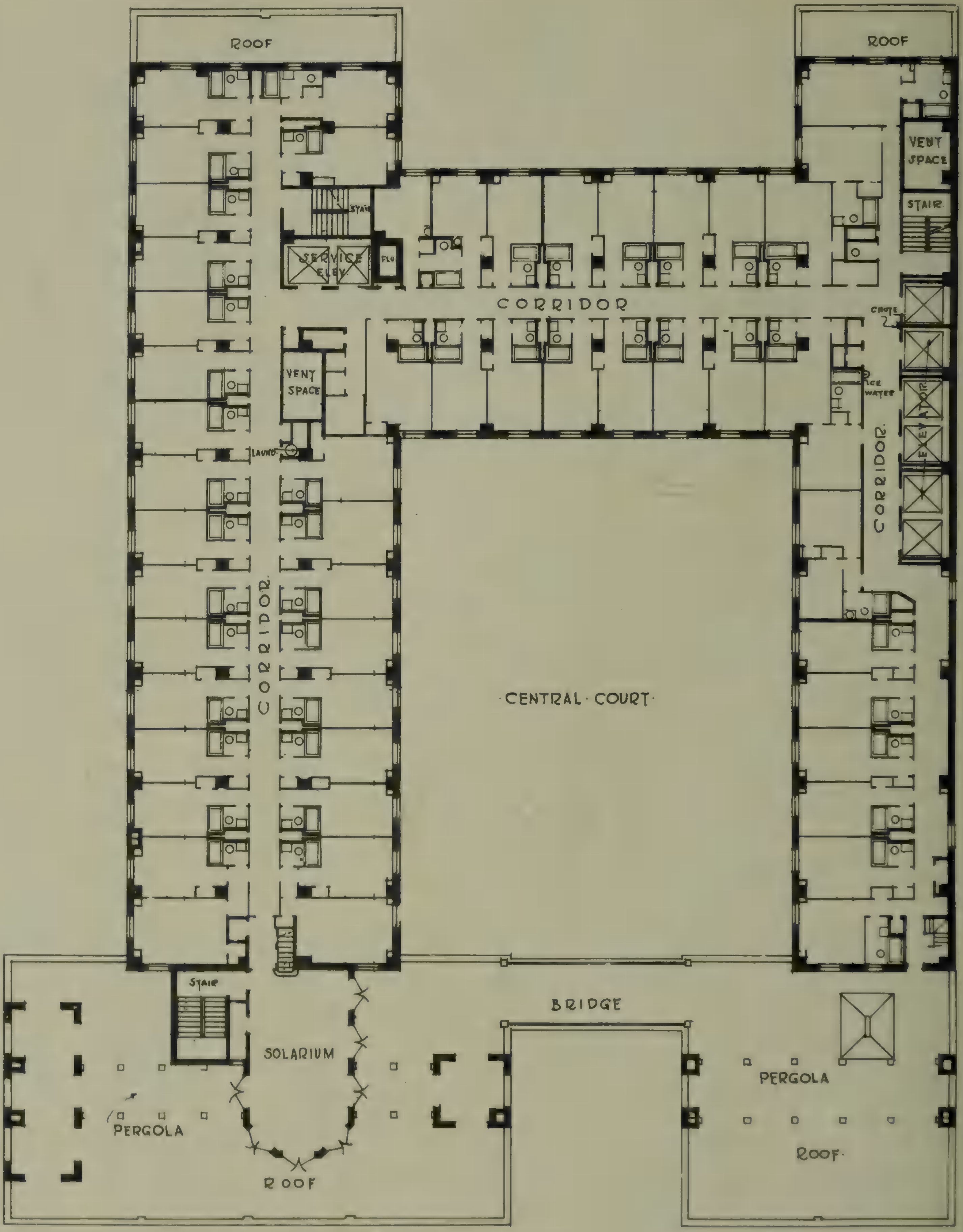


Photo. Anton Bruehl

Inner Court Detail
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT



Plan at First Set Back
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

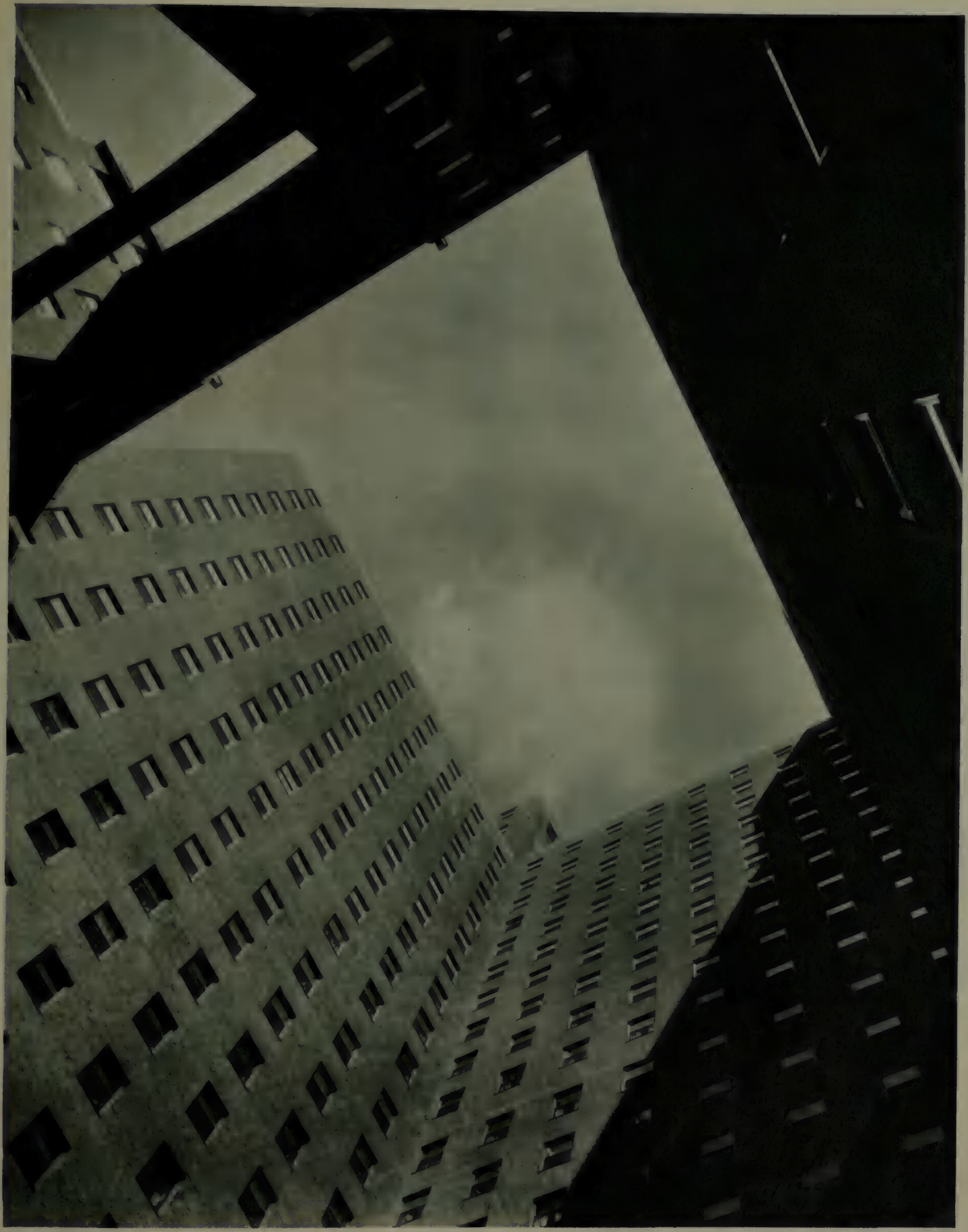


Photo. Anton Bruehl

Inner Court Detail
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

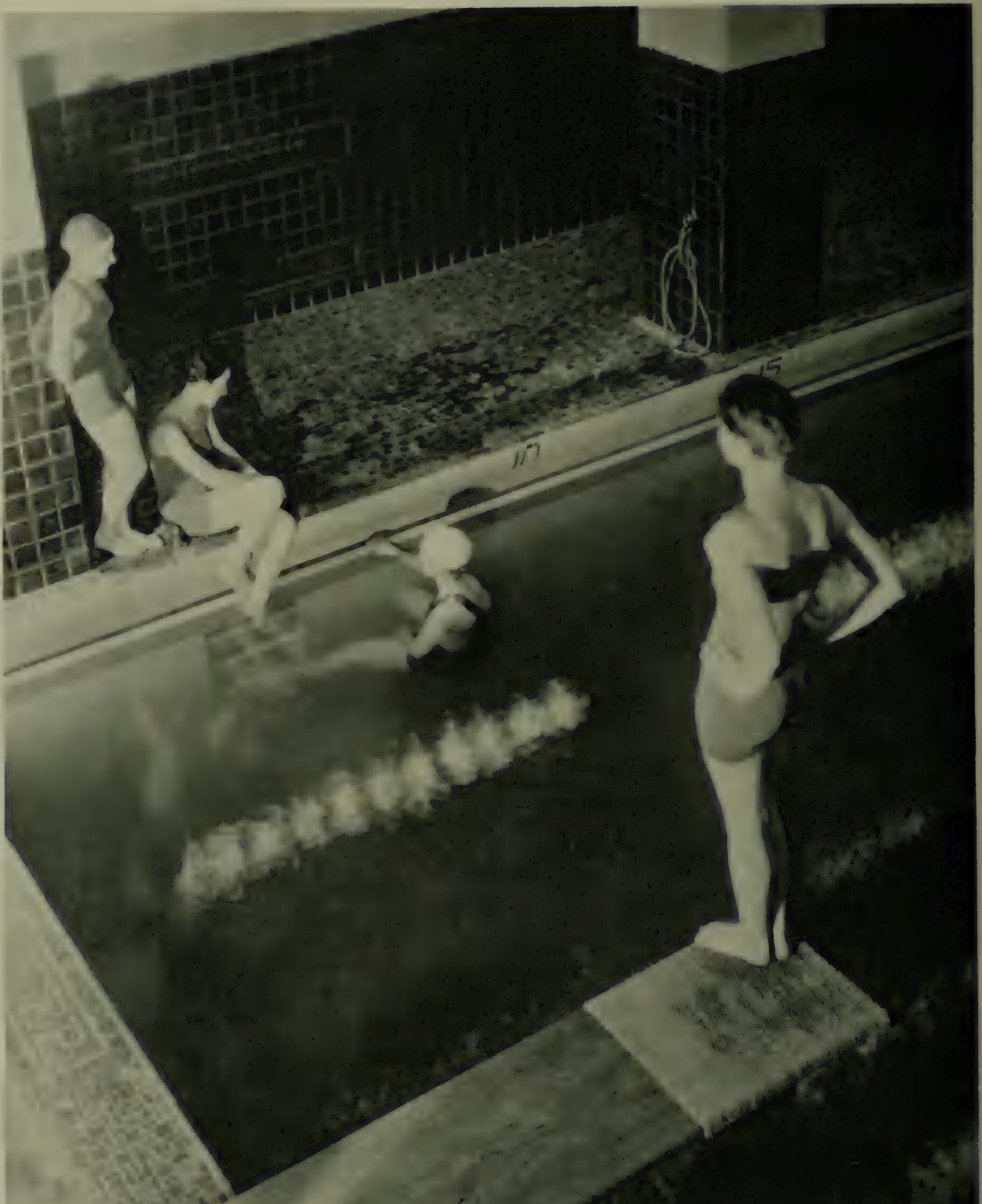


Photo. Anton Bruehl

Swimming Pool
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

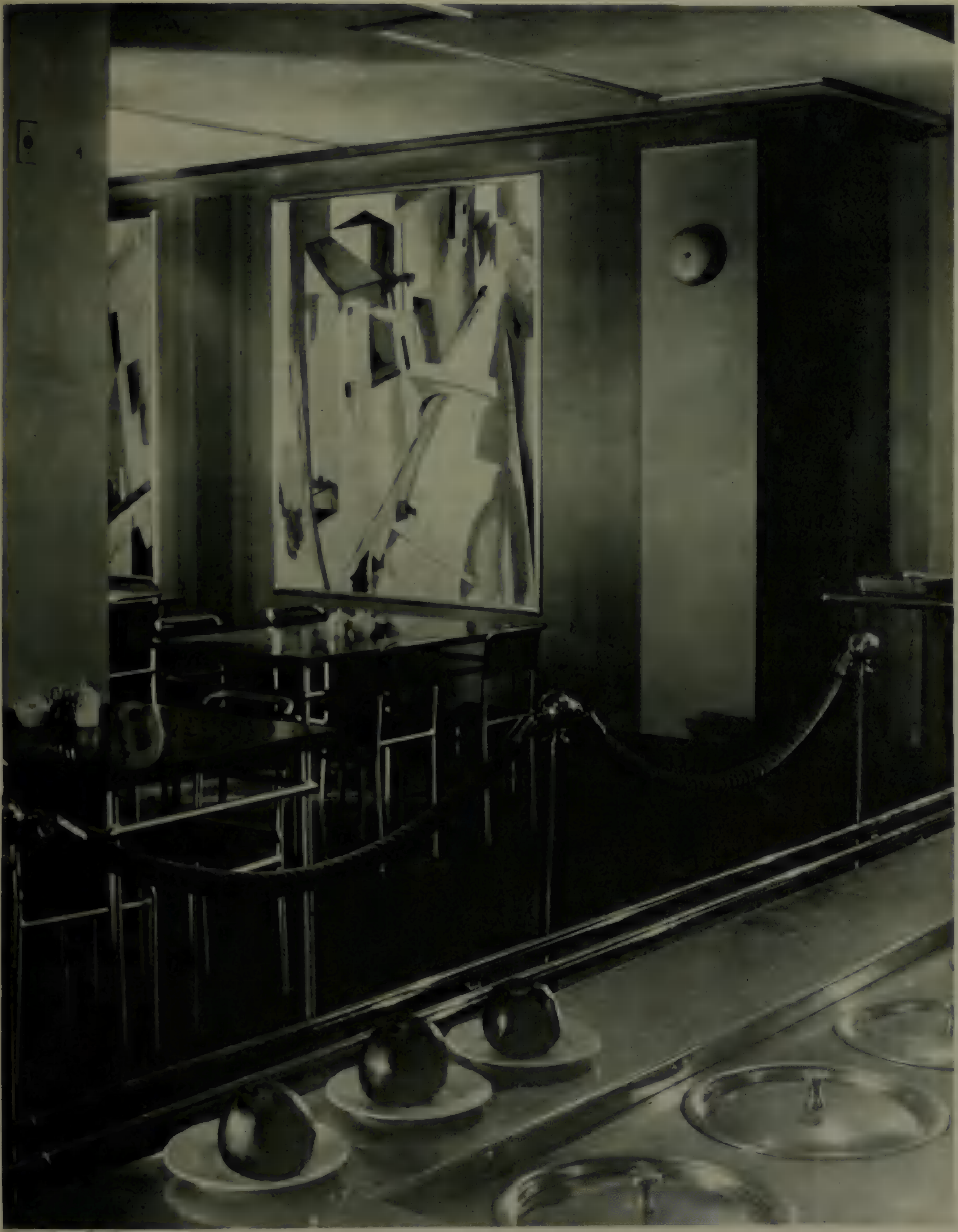


Photo. Anton Bruehl

Cafeteria
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

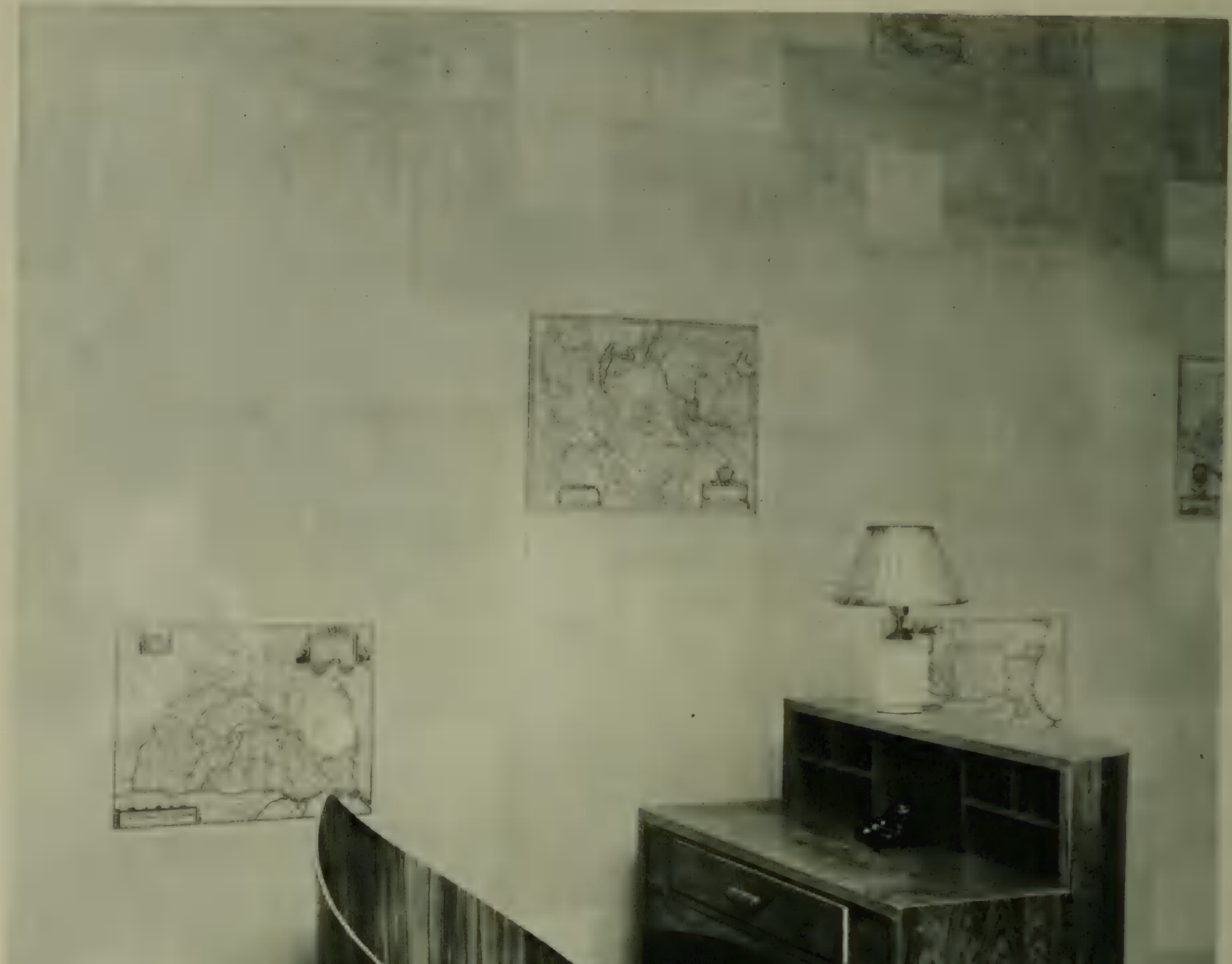


Photo. Van Anda

Writing Room
American Women's Association Building, New York City
BENJAMIN WISTAR MORRIS, ARCHITECT

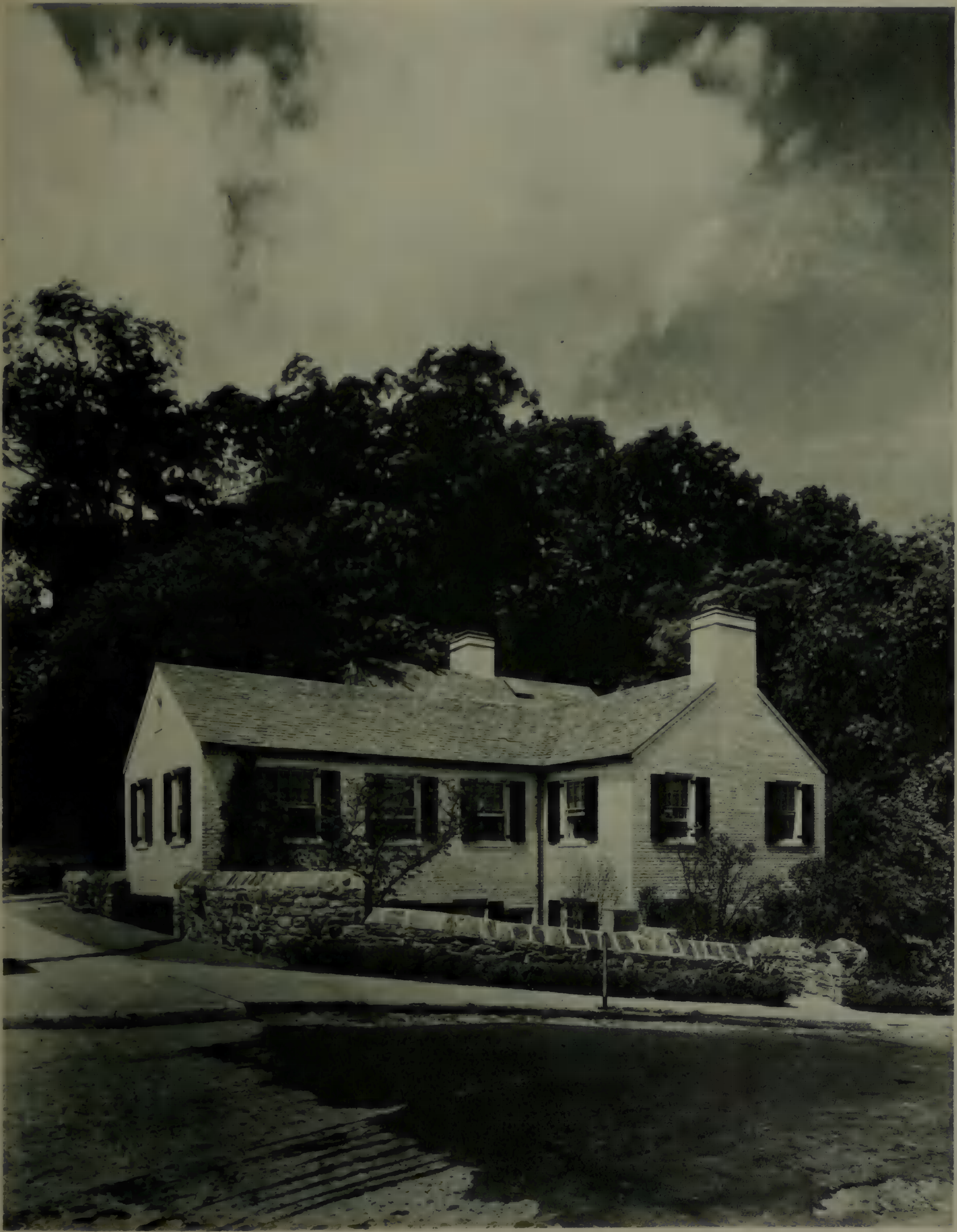


Photo. Nyholm and Lincoln

A Remodelled House
Executive Offices of Lawrence Park Properties, Bronxville, N. Y.
PENROSE V. STOUT, ARCHITECT

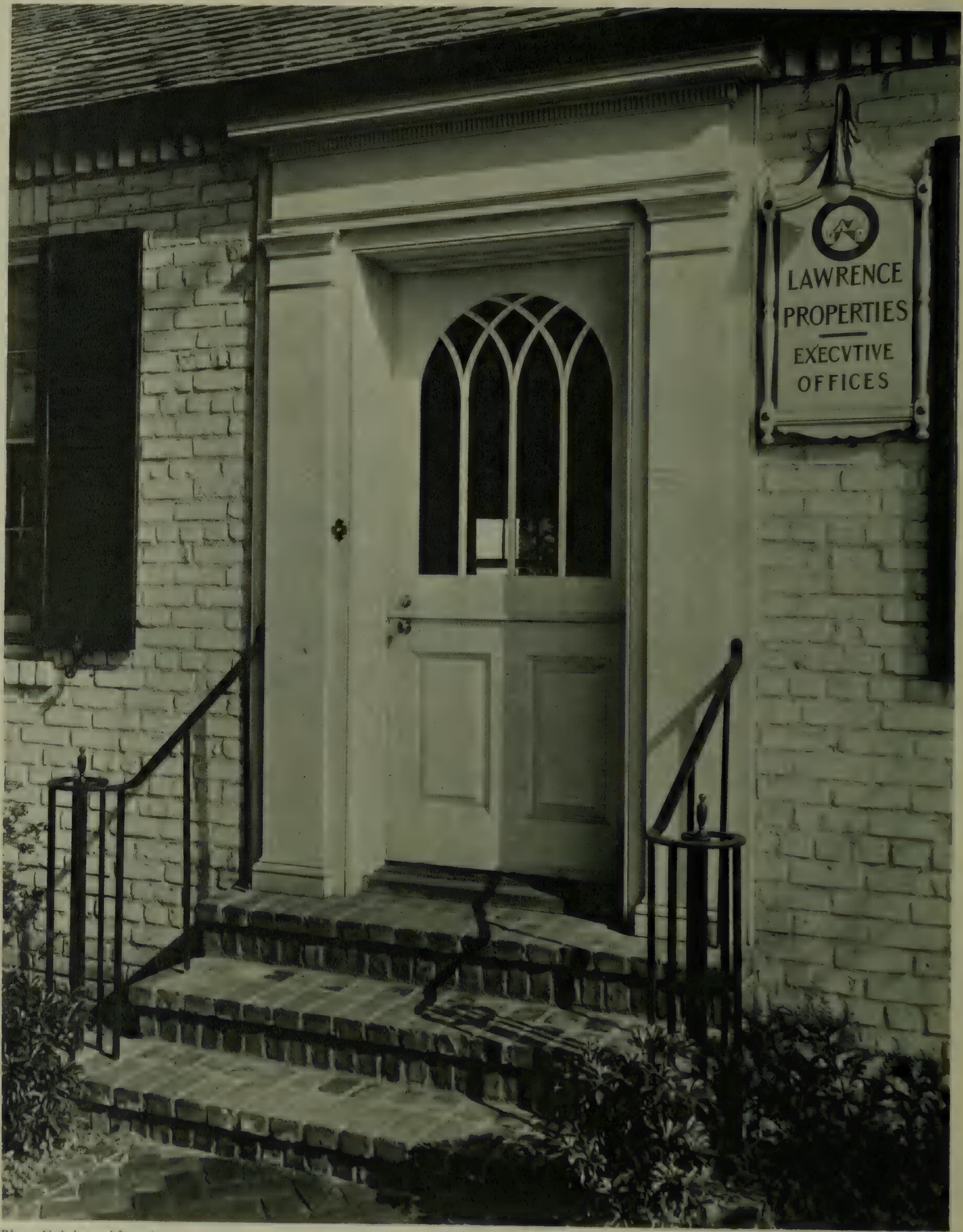


Photo. Nyholm and Lincoln

Entrance Detail
Executive Office of Lawrence Park Properties, Bronxville, N. Y.
PENROSE V. STOUT, ARCHITECT

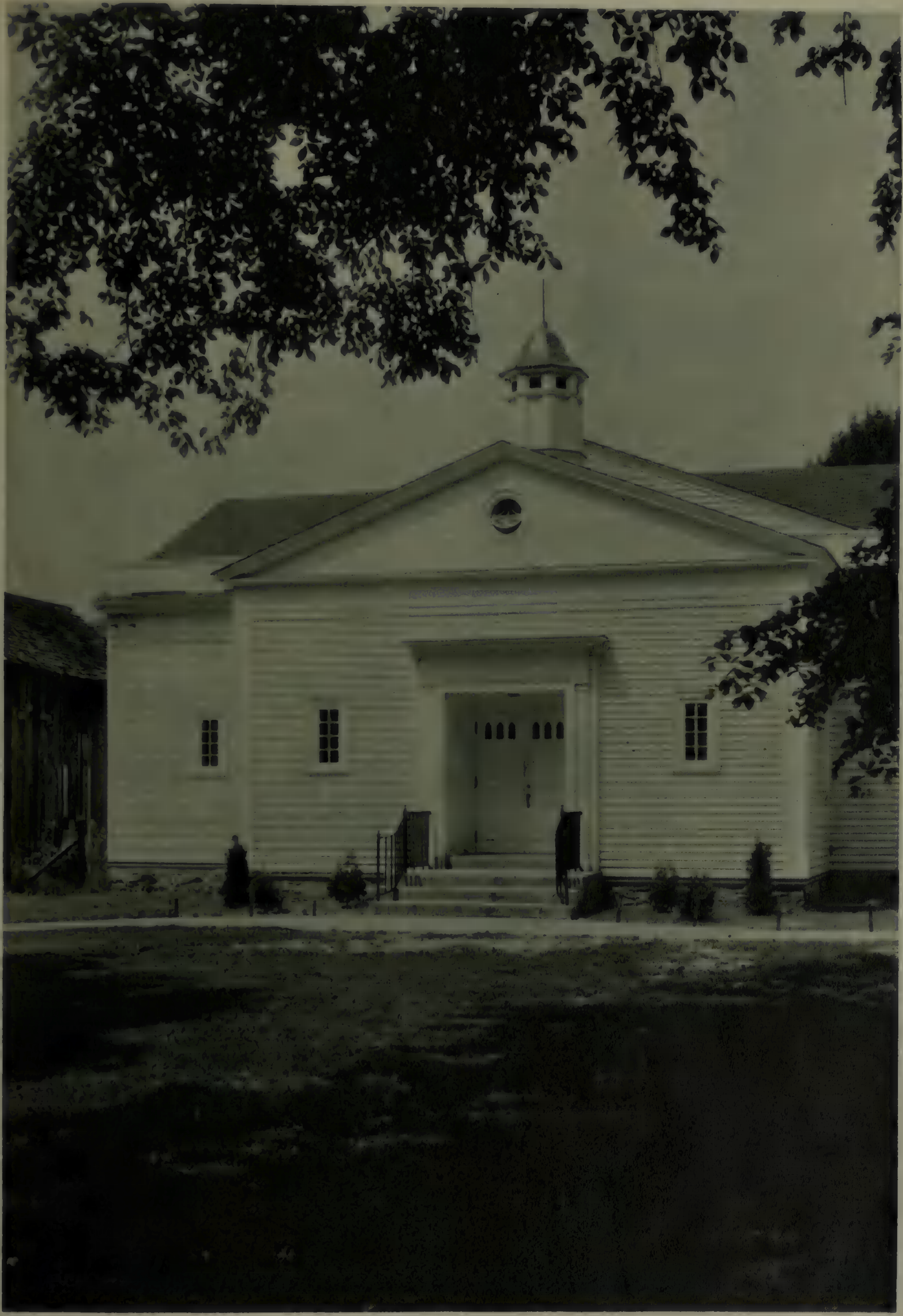
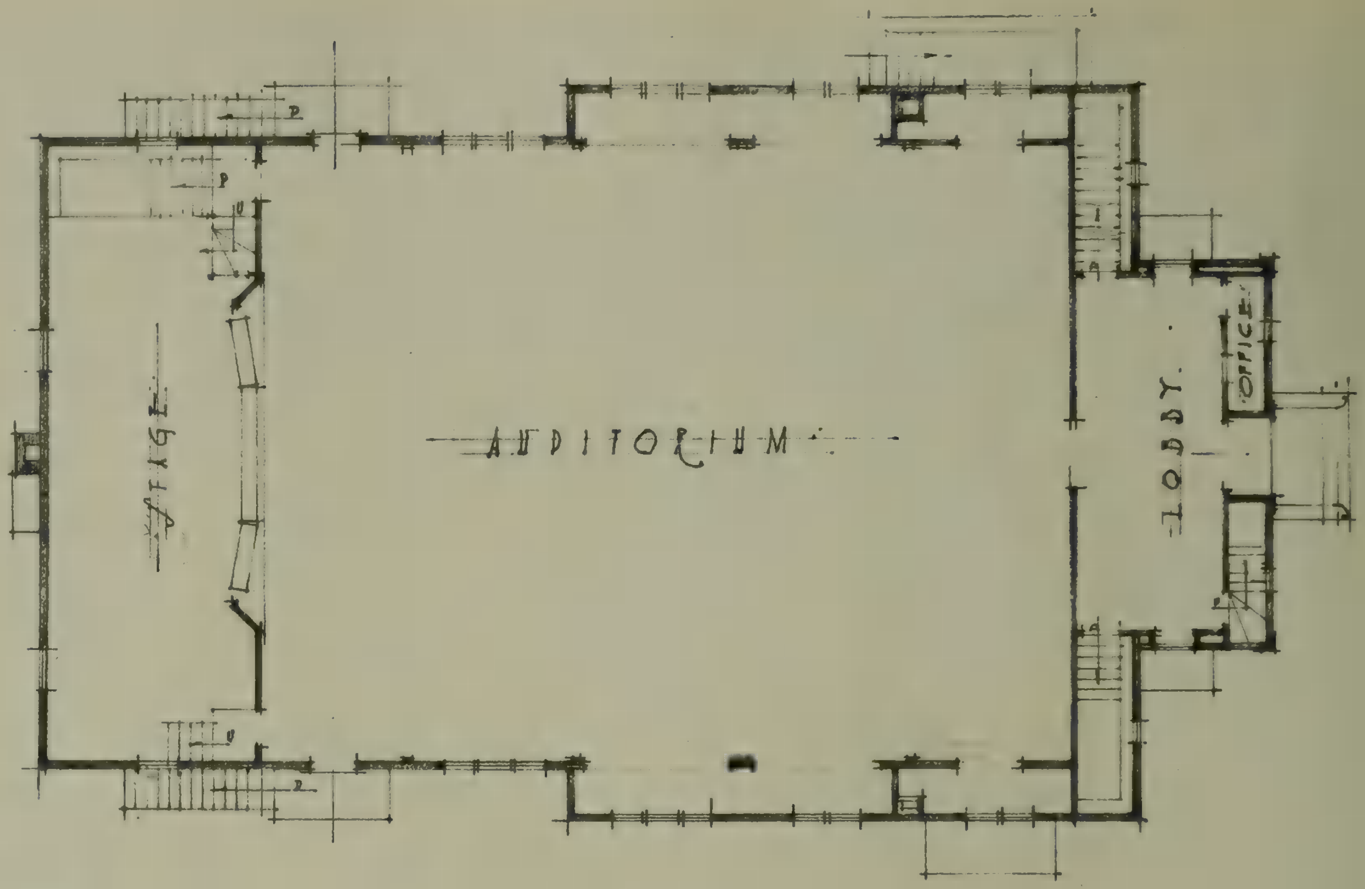
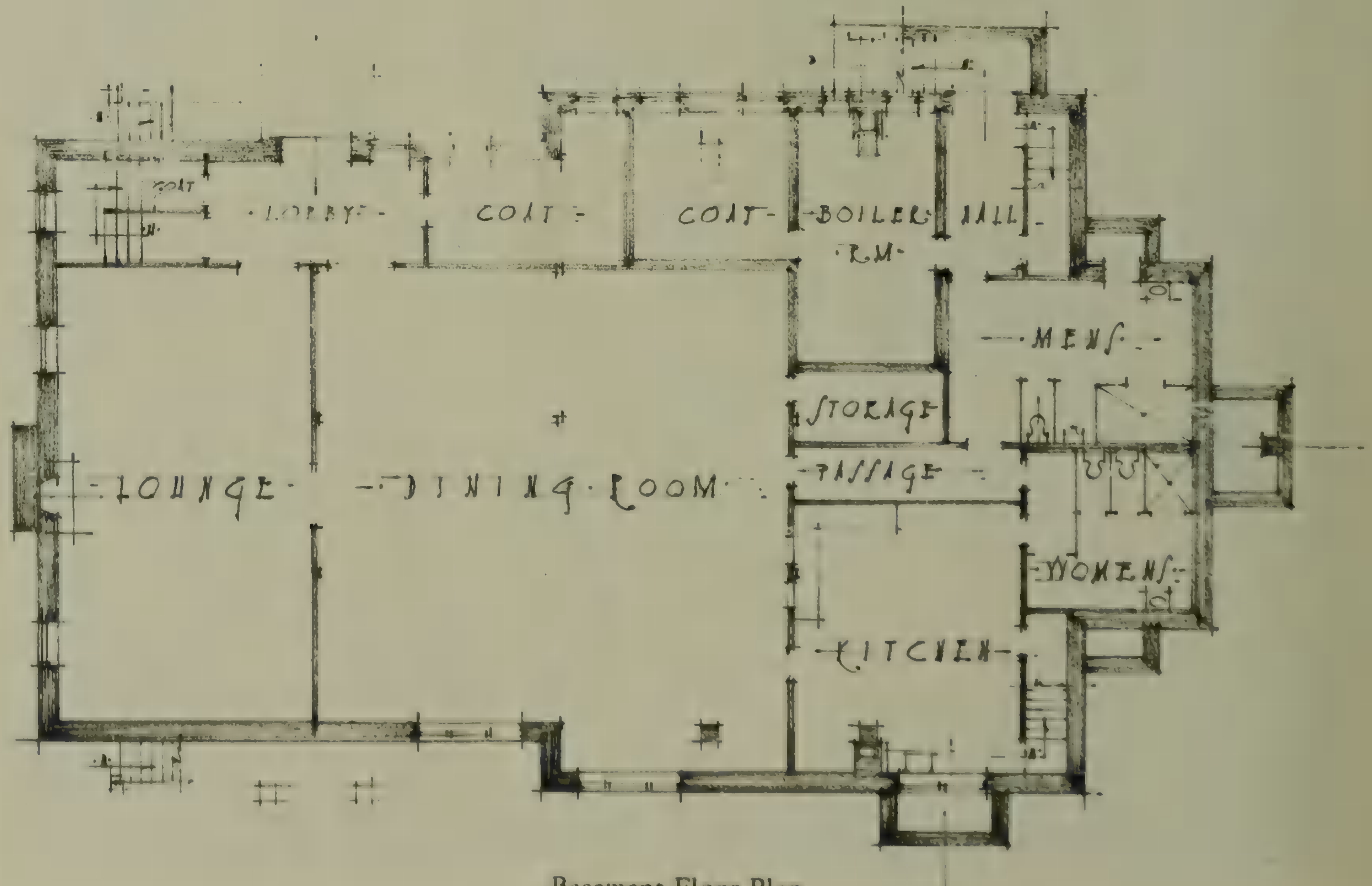


Photo. Van Anda

Kent Community House, Kent, Connecticut
CHARLES W. WALKER, ARCHITECT



First Floor Plan



Basement Floor Plan

Kent Community House, Kent, Connecticut
CHARLES W. WALKER, ARCHITECT

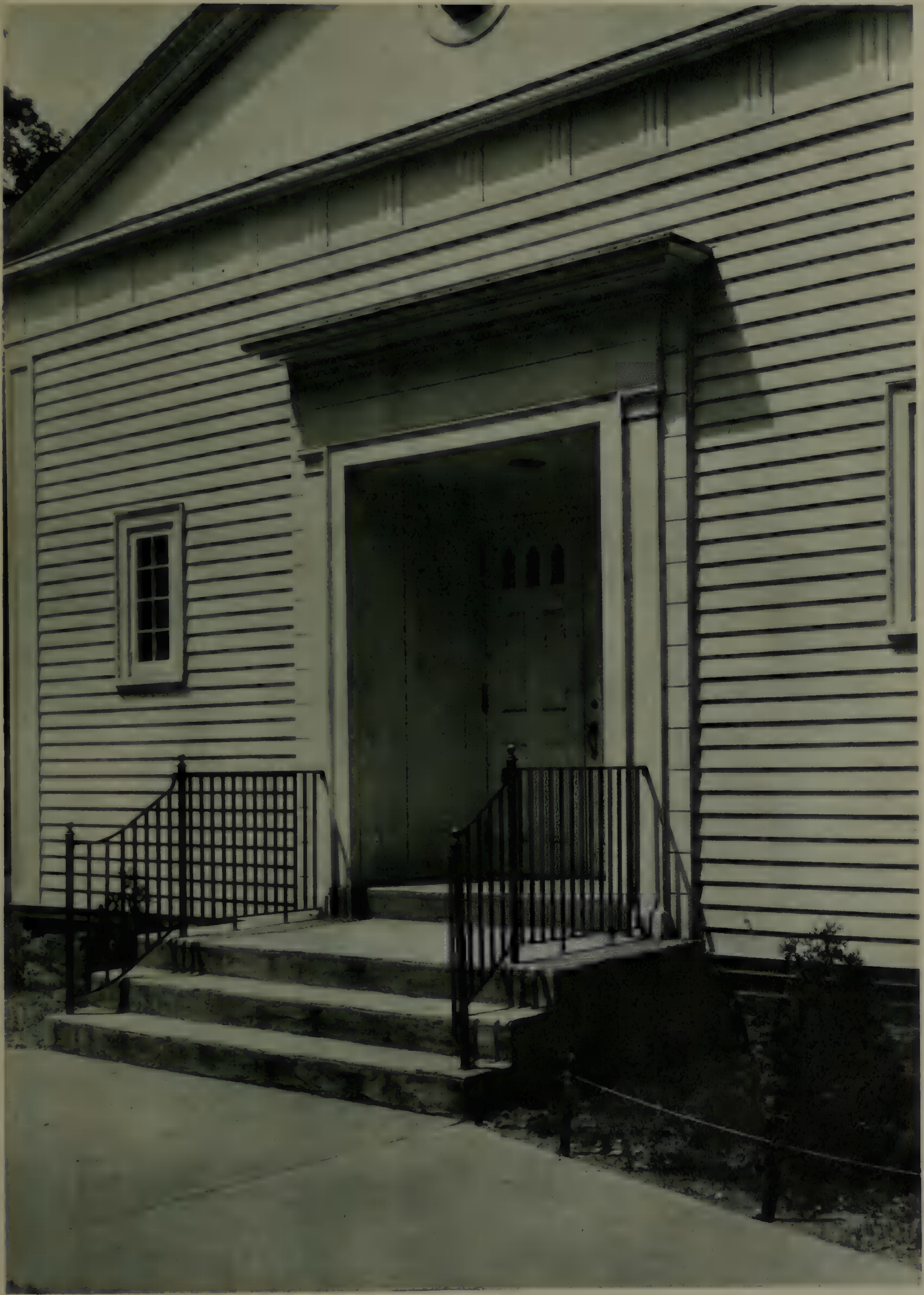


Photo. Van Anda

Entrance Detail
Kent Community House, Kent, Connecticut
CHARLES W. WALKER, ARCHITECT

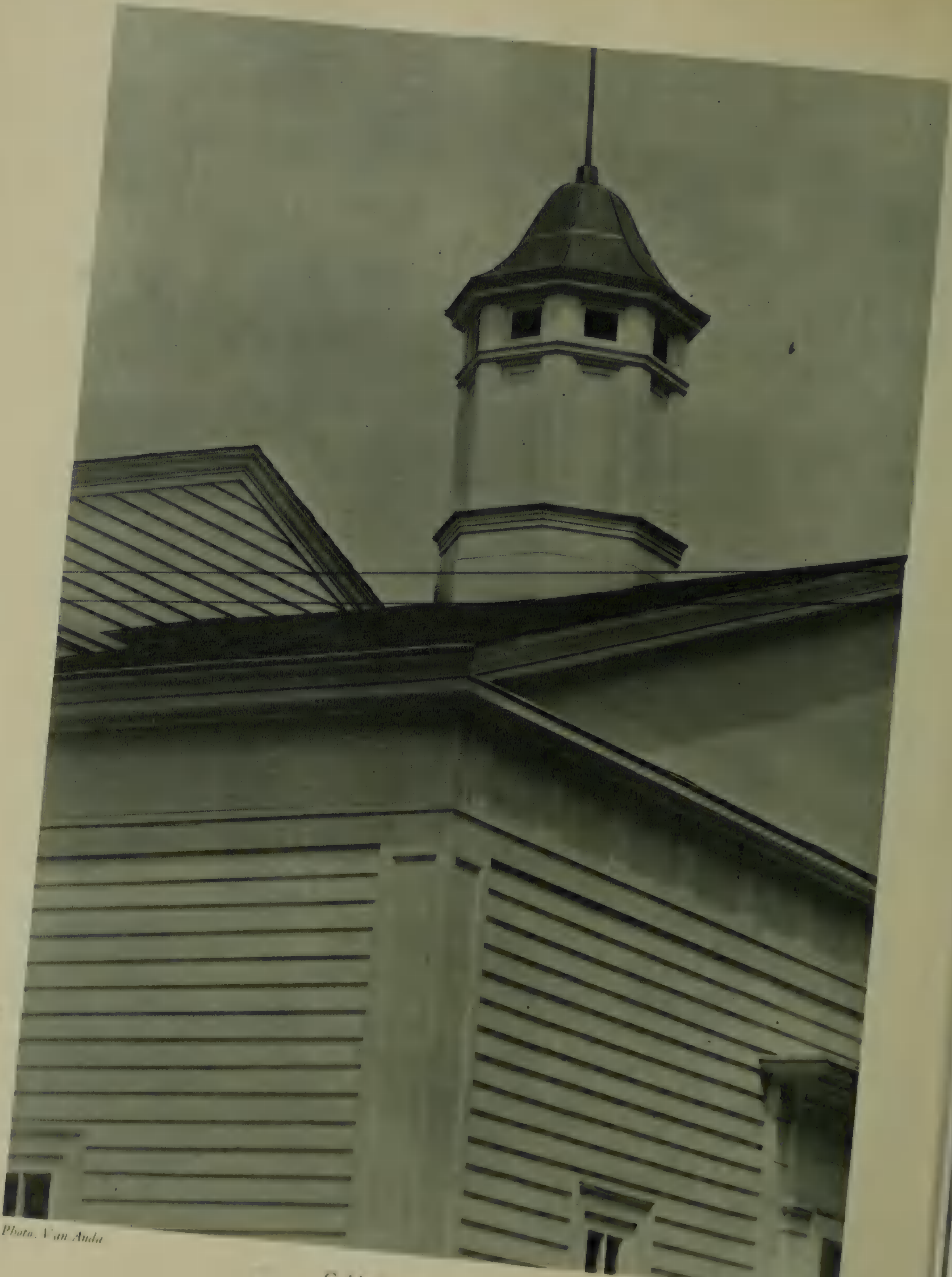


Photo. Van Anda

Gable Detail and Belfry
Kent Community House, Kent, Connecticut
CHARLES W. WALKER, ARCHITECT

THE AMERICAN WOMEN'S ASSOCIATION BUILDING

BENJAMIN WISTAR MORRIS, ARCHITECT*

THE PROBLEM:

To house independent self-supporting women in attractive quarters at not too high a cost.

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THE APPROACH:

A financial schedule was first set up on the basis of the land, building cost, operating cost, and financing.

The protracted financing negotiations gave the architects three years in which to prepare their plans. A plot was first purchased on 23rd Street but it was believed a better could be had, so this original plot was sold after the present location at 57th Street had been acquired.

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FINANCING:

In accordance with the conservative financing, the plan is such that, if at any time the Club should fail, the building could be used as a hotel of the Shelton type.

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PLAN:

In relation to site. Permanent outside exposure is assured to all the higher portion of the building on the valuable west side (facing the river) because the owner of the adjoining property consented to a permanent building height of not more than 63 feet. Until other high buildings may be erected in adjoining blocks, the west rooms will continue to give a view of the Hudson River, and will permanently overlook 9th Avenue.

The fact that a 20 foot corner lot on 57th Street and 8th Avenue also remains in other hands relieves the A. W. A. building from the necessity of expensive set-back construction there and gives it the advantages of an inside plot.

In relation to income. The ground floor and the lower mezzanine are arranged for a maximum outside rental from stores, concessions and offices. The corridor on the ground floor (page 24) is independent of the social circulation of the building, a commercial expedient; as an arcade from 8th to 9th Avenue it adds to the business desirability of the stores. The assembly room produces a fine rental from the surrounding concessions, and is arranged so that it can be rented for banquets to outside organizations; it seats 1200.

In relation to convenience. 1257 bedrooms; 1257 baths; every room an outside exposure. On the sub-basement floor note swimming pool, also foot-pool through which swimmers pass on their way in.

Set-backs are few and large; therefore inexpensive and usable (see page 21).

Inside court permits a garden.

•

MASS PRODUCTION:

A full-sized typical room was set up and a close study was made of the occupant's needs and of the most efficient arrangement for mass-production. It was determined, for example, that though the space was strictly limited it would still permit bridge games, etc. The ducts between rooms (page 26) carry heat and piping; they are of minimum size to perform this service and also to give room for mechanical repairs. The entire nest of piping connections for every room was assembled at the factory and the final connections were quickly made at one point for every 2 rooms. The layout at the job was trued with surveying instruments.

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INTERIOR:

Though the bedrooms in plan are nearly all alike, every room has been finished in a different color. The usual treatment is of rough plaster with bright primary hues.

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CONSTRUCTION:

The usual steel skeleton with veneer of 4 x 8 brick facing and back-up of hollow tile; 2 coats of mastic in the upper portion.

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*Plans and photographs will be found in the gravure section beginning on page 21.

STANDARD PRACTICE IN THE DESIGN OF CHIMNEYS AND FIREPLACES

The following information on chimney and fireplace construction applied to dwelling, apartment house, school and industrial construction was compiled with the assistance of heating engineers, architects, the American Oil Burner Association, the National Board of Fire Underwriters and Domestic Engineering.

Chimneys for Oil Burners

For oil-burning equipment used in connection with domestic heating boilers and furnaces the prime requirement is that there be uniform draft of low intensity. A chimney with ⅔ as much flue area is required for an oil burner as when coal is used. There is, however, the possibility that an oil-burning plant may be forced back to using coal and therefore the inside chimney size recommended in Table A should be used as a guide. Of equal importance is the external construction above the roof. It is essential that the chimney extend at least two feet above the highest part of the building to avoid back drafts from wind currents. The top should be designed so that the flue lining extends to the uppermost point of the chimney. It is preferable to have the flue for the boiler isolated from other flues and under no circumstances should smoke pipes from other equipment, such as a laundry stove, hot water heater, etc., be run to the boiler flue.

With respect to oil burning installations in large commercial and industrial applications it is recommended that in every case the boiler and burner manufacturer both be consulted before the chimney is designed. If this is done the burner air register or ports can be correctly designed and the height and capacity of the chimney can be proportioned to give adequate draft for the maximum operating requirements and no more. Because of the fact that oil burning requires less draft and less chimney capacity than coal for an equivalent release of overhead, the cost of chimney construction can be materially reduced if this procedure is followed.*

Small house heating oil burners are frequently joined to chimneys of 40 feet, or even less, in height. The best results, especially for schools and public buildings, are obtained with chimneys about 80 feet high. This height is sufficient to generate the required intensity of draft to pull gases through the boiler and breeching; greater heights are seldom necessary.† Where chimneys are of greater height the excess draft can be reduced by a damper.

Table B on page 46 is plotted to cover sizes of chimneys from 30 inches to 10 feet in diameter and boiler horsepower up to 6,000.

CONSTRUCTION OF CHIMNEYS

All chimneys shall be of brick or stone laid in Portland Cement mortar, reinforced concrete (in earthquake regions) and should extend at least 3 feet above the point of contact with a flat roof or 2 feet above the ridge of a pitch roof, and shall be properly capped with terra cotta, stone, or other approved incombustible weatherproof material.

Brickwork or reinforced concrete of smoke flues of all boilers, furnaces, large cooking ranges, shall be at least 8 inches in thickness and lined with flue tile. Walls of smoke flues used exclusively for ordinary stoves or open fireplaces shall be not less than 4 inches thick and lined with flue tile. Brick set on edge shall not be permitted in chimney construction.

Where two or more smoke flues are contained in the same chimney, the walls between the several flues shall be not less than 4 inches thick. The walls of stone smoke flues shall be 4 inches thicker than required for brick or reinforced concrete. No smoke flue shall have smoke pipe connections in more than one story of a building.

Every smoke flue contained in a chimney shall have an area of at least 64 sq. inches and shall be lined with hard burned terra cotta or fire clay flue lining made smooth inside. The flue lining shall start from the bottom of the flue, or from the throat of the fire-

TABLE A

Minimum Chimney Flue Sizes and Heights Recommended for Furnaces and Low Pressure Steam and Hot Water Boilers

Area dimensions given are inside measurements of masonry walls of the chimney

Warm Air Furnace Capacity in Leader Pipe sq. in.	Boiler Capacity		Dimensions inches	Height feet
	Hot Water Rating sq. ft.	Steam (Direct) Rating sq. ft.		
To 450	To 700	To 450	8 x 12	35
800	900	600	8 x 12	35
1000	1100	700	8 x 12	40
	1500	1000	12 x 12	35
	2500	1500	12 x 12	40
	4000	2500	12 x 16	40
	5800	3600	16 x 16	45
	7300	4500	16 x 20	50
	8700	5400	20 x 20	55
	10000	6400	20 x 24	60
	12000	7400	24 x 24	65
	14000	8400	24 x 28	65
	15000	9400	28 x 28	70
	17000	10400	28 x 32	70
	19000	11400	30 x 30	70

Handbook of Domestic Oil Heating, 1930.

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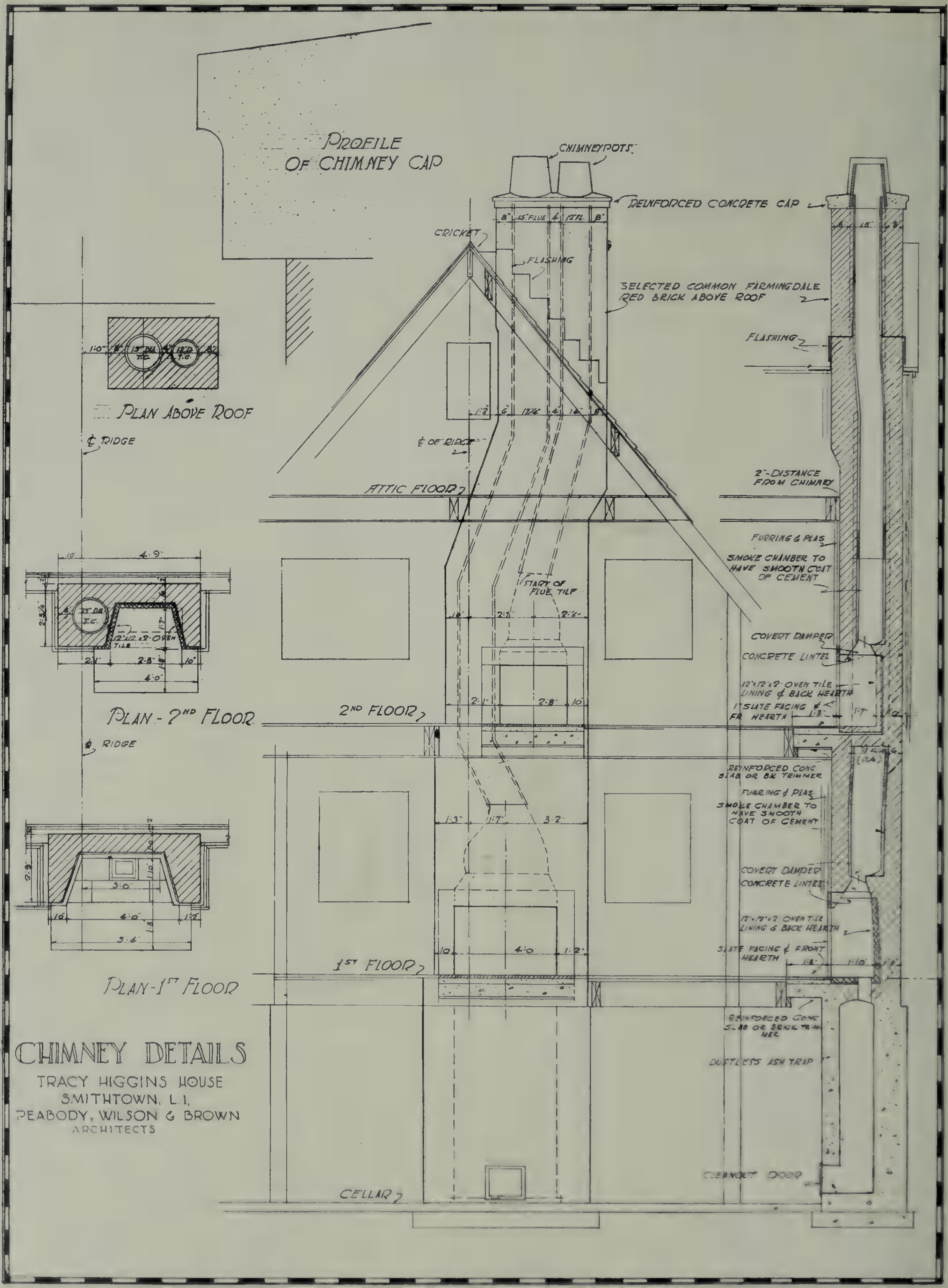
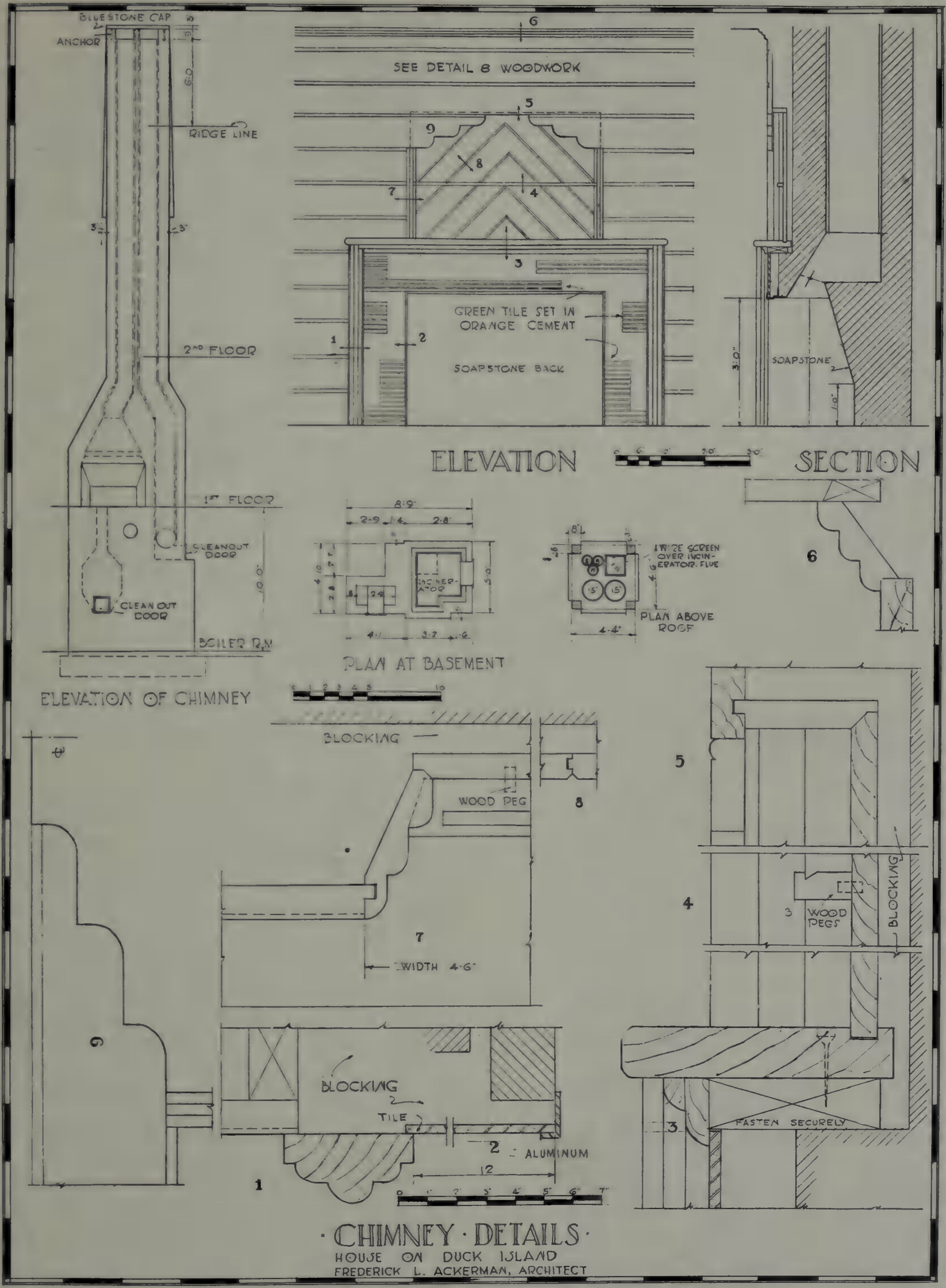
* American Oil Burner Association, Inc., New York City.

† *Domestic Engineering*, September 21, 1929. Page 155.

ON OPPOSITE PAGE: FORD PLANT CHIMNEYS
Photograph by Charles Sheeler



CHIMNEY DETAILS OF APPROVED CONSTRUCTION
Note section above fireplace opening
with firechamber lined with oven tile



FIREPLACE AND CHIMNEY DETAILS

Six flues are grouped in single chimney stack with wire screen over incinerator flue. Fireplace opening is lined with soapstone place, and shall be carried up continuously throughout the entire height of the flue. If the thickness of the masonry surrounding the throat is less than 8 inches in any part, the lining shall start at bottom of the lintel. The ends of the sections of all such lining tile shall be laid on cement mortar and the tile shall be built in as the flues are carried up.

No parging mortar nor plaster shall be used on the inside of any fireplace, chimney or flue.

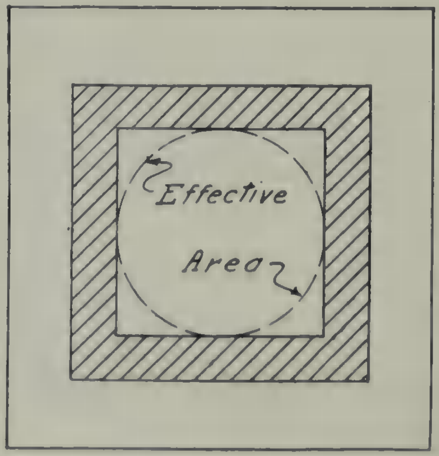
Chimneys for High Buildings

Where the height of a building requires that a chimney be built much higher than the installation requires, then allowance must be made for excessive draft. Practically, this is no disadvantage as excess draft can always be brought down by the introduction of a damper which, when held partially closed, will introduce sufficient resistance to offset the excess of draft. It is better, however, to introduce this increased resistance by reducing the size of chimney, thus cutting down the installation cost.*

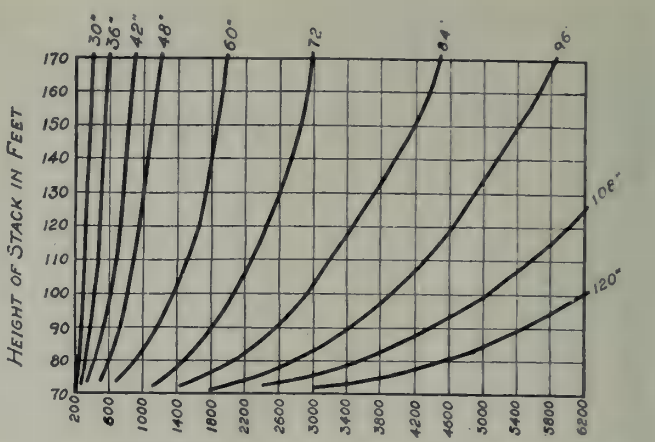
Chimney stacks for large industrial boilers shall extend at least 10 feet above the highest point of any roof within a radius of 50 feet and no woodwork shall be within 3 feet of any part of such chimney.

Shape of Flue

The circular flue has been determined from experience to be the most efficient but because of construction difficulties the square or rectangular flue is in more general use. The loss in effective area in a square or rectangular flue is not so great as was once generally supposed. Because of the spiral action of smoke it was common practice to figure the effective area of a square flue as the area of an inscribed circle within the square. This meant that the area which would be considered of real value for the flow of gases would be only 78 per cent of the area of a square flue. It is now accepted that a 10 per cent allowance for angles is ample for a satisfactory draft. The ordinary flue, when of rectangular shape, should never have the long dimension over three times the length of the short dimension; two times the short dimension is preferred.



H. L. ALT
In *Domestic Engineering*, p. 53, Oct. 19, 1929



Domestic Engineering, p. 155, Sept. 21, 1929

TABLE B

Increase Flue Area Above Sea Level

Flue area must be increased with a greater elevation above sea level because of more rarefied air. Also the height of the chimney must be increased. The following correction should be made to the area to allow for higher altitude.*

	Add Per Cent		Add, Per Cent
At Sea Level......	0	At 4,000 ft.......	16
At 1,000 ft.......	3½	At 5,000 ft.......	20
At 2,000 ft.......	7	At 6,000 ft.......	26
At 3,000 ft.......	11	At 8,000 ft.......	37

FIREPLACE CONSTRUCTION

All fireplaces and chimney breasts where mantels are placed, whether intended for ordinary fireplace use or not, shall have trimmer arches or approved fireproof construction supporting hearths. The arches and hearths shall be at least 20 inches in width, measured from the face of the chimney breast. The arches shall be of brick, stone, hollow tile or reinforced concrete of approved thickness. The length of the trimmer arch and the length of the hearth shall not be less than the width of the chimney breast. The hearth shall be of brick, stone, tile or other approved fireproof materials. Firebacks of all fireplaces shall be of solid masonry not less than 8 inches thick.

The inside area of chimneys used for fireplaces should approximate an area of 1/10 the area of the opening of fireplace into room. If the fireplace opening in the room is 3′ wide and 2′ 6″ high (an area of 1080 sq. inches), then the flue area should be 1/10 of 1080 = 108 sq. inches. A 12″ x 12″ flue tile is recommended because this size of standard tile has an inside area approximating the 108 sq. inches. (See Shapes of Flue.)

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* *Domestic Engineering*. Page 97, Oct. 19, 1929.

* Harold L. Alt. *Domestic Engineering*. Nov. 16, 1929. P. 102

All fireplaces should be equipped with standard dampers with lever control at side of chimney breast.

It is extremely important to construct the fireplace in accordance with the details shown in drawings that accompany this article. The thin arch above fireplace opening and the shelf at back of damper are located so as to eliminate diverting of smoke into room.

Trimmer Arch

All fireplaces and chimney breasts shall have trimmer arches or other approved fire-resistive construction supporting hearths. The arches and hearths shall be not less than 20 inches wide measured from the face of the chimney breast, and not less than 12 inches wider than the fireplace opening on either side. The arches shall be of brick, stone or hollow tile, not less than 4 inches thick. A flat stone or a reinforced concrete slab may be used to carry the hearth instead of an arch if it be properly supported and a suitable fill be provided between it and the hearth. Hearths shall be of brick, stone, tile or concrete as may be specified. Wood centering under a trimmer arch shall be removed after the masonry has thoroughly set.

Mortar

Mortar used between the joints of flue linings and in the portions of a chimney above a roof or otherwise wholly exposed to weather shall be mixed. (1 part Portland Cement—3 parts Sand.)

Fire brick used for the lining of flues or facing the interior of fireplaces shall be laid in *fireclay mortar*.

All mortar used in chimney construction, except as specified above, shall be not leaner than the following mixture by volume:

1 part Portland Cement
1¾ part Hydrated Lime*
6 parts Clean Sand

Smoke Test

All flues to which large ranges, heating furnaces, boilers, automatic gas water heaters or fireplaces are to be connected shall be subjected to a smoke test before acceptance, but the test shall not be made until the mortar has thoroughly seasoned. The method of test is to build a smudge fire at the bottom of the flue and while the smoke is flowing freely from the flue, close it tightly at the top. Escape of smoke into other flues or through the chimney walls indicates openings that shall be made tight before the chimney is accepted. The test shall be made by the mason contractor in the presence of the Building Inspector or other official having jurisdiction, and of the owner or his representative.†

Photo. Clark

YALE UNIVERSITY POWER HOUSE
DAY AND KLAUDER, ARCHITECTS

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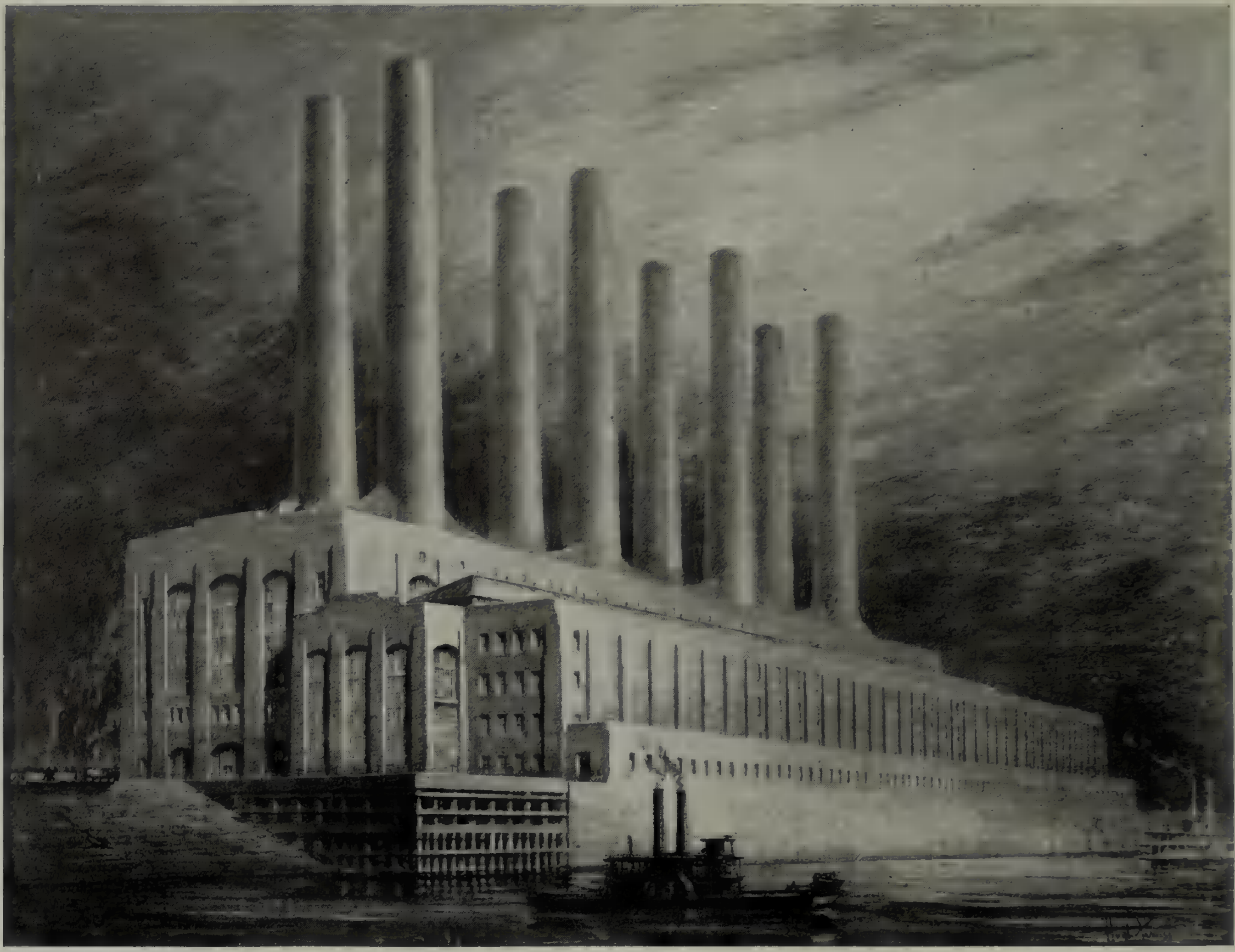
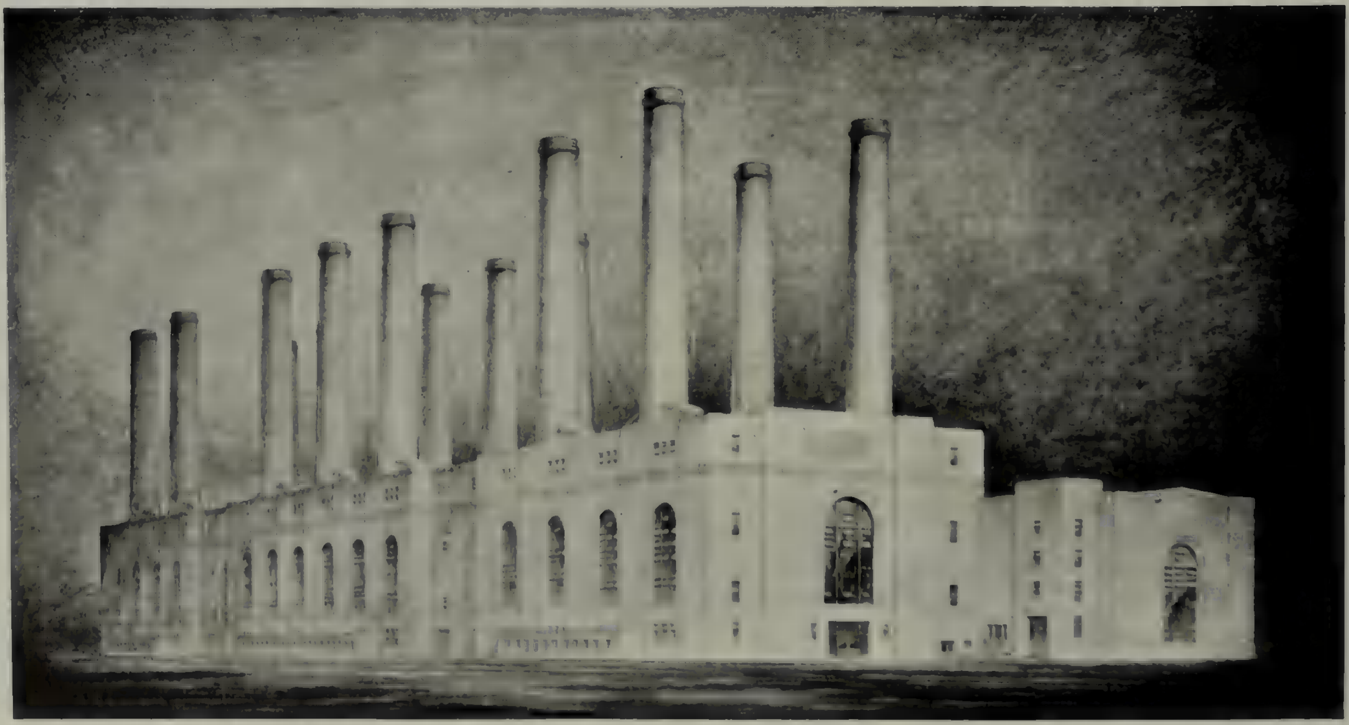
* In lieu of hydrated lime, slacked putty lime may be dissolved in the mixing water.

† "A Standard Ordinance for Chimney Construction." Page 11.



CAHOKIA POWER STATION, EAST ST. LOUIS, MO.
MAURAN, RUSSELL AND CROWELL, CONSULTING ARCHITECTS



PROPOSED STEAM PLANT, SOUTHERN CALIFORNIA EDISON CO., LONG BEACH, CAL.
STONE AND WEBSTER, INC., ENGINEERS

KEEPING THE ARCHITECT EDUCATED

ARE architects as a professional class opposed to post-graduate study? In a canvass made of 424 graduates of the past fifteen years, from eight of the schools of architecture of America, only fifteen architects (less than 4 per cent) returned to schools in pursuit of advanced study. Compared with graduates in medicine (with over 32 per cent returning for specialization) the architect appears to accept his education as complete with the awarding of his degree; or, by circumstances, he accepts foreign travel and office experience as all that is required to "top off" his formal training.

The value of foreign travel to the young architect today has been diminished because of the altered character of American design and because of an increasing emphasis given by offices to economic and practical requirements of buildings. Several scholarship students abroad at this moment are chafing under the two or three years that they are required to spend in Europe; they feel that they are losing contact with what is being done in America, and that one reaches the saturation point after a year of continued travel. The preparation of laborious *envois* drawings of palaces and town halls is becoming increasingly irksome.

Office experience is unquestionably necessary to the training of the young architect but most architects cannot advance by their own experience alone. As pointed out by Robert D. Kohn at the last Convention of The American Institute of Architects, "office experience is excellent but we have very poor methods of interchanging experience, of letting each other know what each has so learned. If the medical man were to take as little care to follow up what his professional associates were discovering, what the medical research men were ascertaining, if he read as little in the medical journals about what the other medical men were working out as we architects do to find out what the other man is doing, he would be considered hopelessly behind his time."

Adult architects who desire to specialize in some branch of their practice will find that graduate courses for specialization are non-existent in the American college and university. This leaves the school of experience as the sole source of advanced training open to the ambitious architect. It is obvious that something should be done by our profession to develop a scheme of instruction which will keep architects abreast of progress in construction, design and economics. This advanced training, currently known as adult education, would be in the nature of "re-exposure" to scientific data and recent developments. It is also to enable mature individuals to meet more successfully the newer problems which have arisen with changes in thought and practice due to research and new discovery.

An educational program formulated to assist the adult architect could comprehend one or more of the following endeavors:

1. Schools of architecture could provide graduate study in special branches with special emphasis given to current trends in design, construction, the business of architecture, social sciences related to housing and building.

2. The American Institute of Architects could develop a scheme of adult education through its Chapters and also by widening the scope of its annual convention, which would permit a more systematic interchange of ideas than now exists. Information

could be imparted under the direction of specialists in allied fields as well as by architects. Obviously such study should be made available with the least possible interruption to office routine.

3. The establishment of a summer or winter school of instruction to which architects may go for brief periods of special study.

An experiment in adult education is now being made by the Columbia University Club. This organization has instituted five courses; in finance and banking, international relations, economics, psychology and social science. There is one meeting in each subject every week at which a Columbia Professor informs hard headed business men of the newer developments in his particular field. The experiment is proving so successful that class groups were limited to an enrollment of twenty for each course and in spite of an entrance fee of thirty dollars. As reported by the *Columbia Alumni News* the "alumni go back to school—and like it."

A. LAWRENCE KOCHER.

"THE HOUSES IN WHICH MIDDLETOWN LIVES"

GLOUCESTER STREET
Painting by Edward Hopper

HOW fares the average American under architecture? What does it do to his own home, what does it mean to him where he comes in most intimate contact? The humblest small-town architect knows, but the architectural magazine does not quite say. Professional literature is concerned with inventions, with new construction, and usually with rather large undertakings: but what a walker sees on the street also includes all the tall errors of the past, the remnants, the jerry-building, the helter-skelter of small wretched units. It is to painters such as Edward Hopper and Charles Burchfield that the American historian of the future will have to turn for a transcription of *this* reality. But recently the complete scene in a middle-sized American city has been splendidly put into print by two sociologists in their book called *Middletown;* and in this book is drawn together, from the real estate records and the figures of the telephone companies and the tax returns and census reports and other similar sources as well as from personal interviews, a vivid picture of the home of the average American.

"Middletown's 38,000 people live in 9,200 homes: 86% of these homes are in one-family houses, each standing on a separate patch of ground, the latter called, with increasing significance in view of its shrinkage in size, a 'yard'; 10% are in two-family houses, a more common type since 1890 because building costs have risen; 1% in apartments, and 3% over stores . . . The life of a house in Middletown is thirty to fifty years."

Now what has architectural progress done for Middletown? In the newer houses, quite a lot. For instance, a Middletown builder estimates "that the majority of houses constructed during the last ten to fifteen years have at least 50% more glass surface than in 1890. More air can be let in from without today because more heat can be secured within." And, whereas in 1890 there were not over two dozen complete bathrooms in the entire city, and a leading citizen thought it important to enter in his diary that a neighbor "has a hydrant for his house," today "all new houses, except the very cheapest, have bathrooms, and many old houses are installing this improvement rapidly."

But such indications fall wide of telling the whole story. Despite the professional attention now given to masonry, Middletown is practically built of wood. It remains true, as for the working class, that it "still lives in the base-burner and unheated bedroom era," and as for sanitation, that "many homes still lack not only bathroom, but, in January, 1925, approximately one in four of all the city's dwellings lacked running water. *According to the City Engineer, only two-thirds of the houses had sewer connections in 1924.*" The industrial section is still composed of "bare little one-story oblong wooden boxes with a roof and with partitions inside making two to four small rooms," half-lit, musty, bare.

Now why is it that homes are so difficult to get and so poor, at the height of an era of technical invention, and that there is a building shortage in Middletown just when building and loan associations have made the terms of financing the easiest? It is largely because the straight line to a home is obstructed and detoured by a maze of institutional devices. This is the combination of forces necessary in Middletown to produce a home of the more ambitious sort:

"The site was part of a new subdivision exploited by local real estate men. A landscape architect was brought from Chicago to lay out the subdivision. The house was built by the owners of the real estate. The project was financed by the local banks. The plan was made by an architect. Construction was under the general supervision of a man whose business is described in the local directory as 'Designer and Builder, Real Estate, Investments, General Insurance.' The above man is busy at many things and therefore had another man on the job as general supervisor of work and materials. The foundation was laid by a bricklayer sub-contractor's men. The stone base topping the foundation was sub-contracted to another contractor and his men." Other individual subcontractors are listed, respectively, for plumbing, painting, tinware, and heating.

Is it any wonder that, since cheapness can be secured only by skimping one of these many factors, the luxury of artistic design is the first to go, and that architects have lost more and more homes to the jerry-builders?

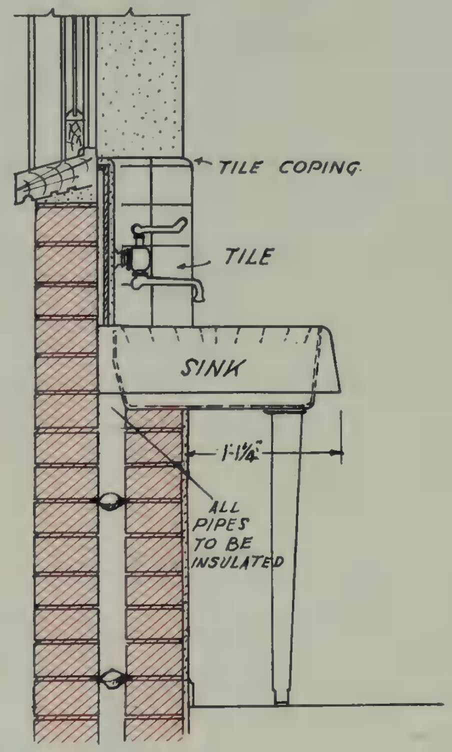
Now a straight line to a home is so universal and permanent a human requisite that it can confidently be prophesied that such a tangle as this will not always continue. There is a direct invitation here to large manufacturers to cut through the Gordian knot by simplification, just as in the automobile industry 1,600 kinds of steel tubing have been reduced to 210, and 800 sizes of lock washers to 16, and uncounted acts by the consumer of specifying and ordering have been brought down to the single act of purchase.

If architects are to retain a hold on the mass of building with the approaching direct methods, or, better, if they are to gain leadership, should they not—as they have already done in Europe—give serious consideration to the problems of the "minimal house," of community planning—of the straight line, in short, to a home?

Perhaps this is not a problem of "Architecture": but an art that drifts away from the mass of the people is in danger not only of losing its volume but of becoming sterile.

DOUGLAS HASKELL.

NOTES ON DRAFTING AND DESIGN

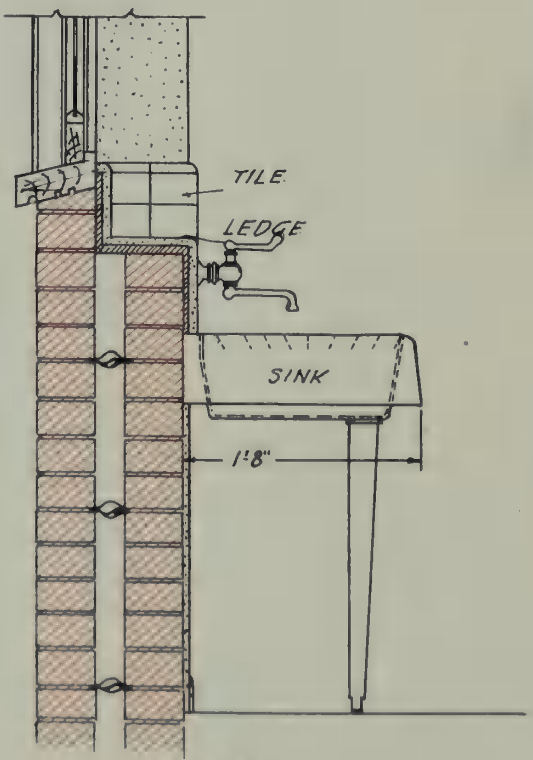


"A"

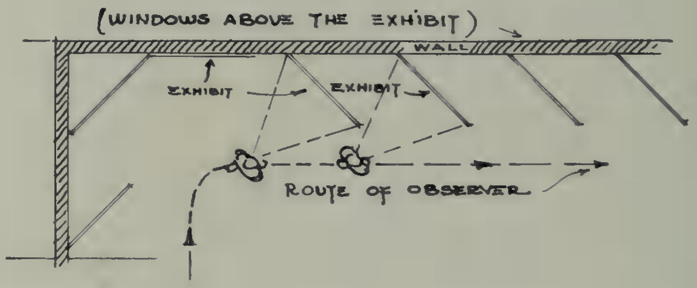
LESS SPACE FOR THE KITCHEN SINK:

With hollow wall and veneer wall construction it is possible to reduce the encroachment of a kitchen sink upon floor space by building the sink and drainboard into the wall as illustrated in A. By this method 6¾ inches of space is saved. It makes for rigidity and permits the lining of the space at the back and ends with glazed tile. In northern climates all pipes within walls must be thoroughly insulated against freezing.

Where space is less important, a shelf for accessories, faced with tile, can be built above the sink as in Scheme B. (Suggestion of Edwin Gunn, Architect, in *The Architect and Building News*, London.)



"B"

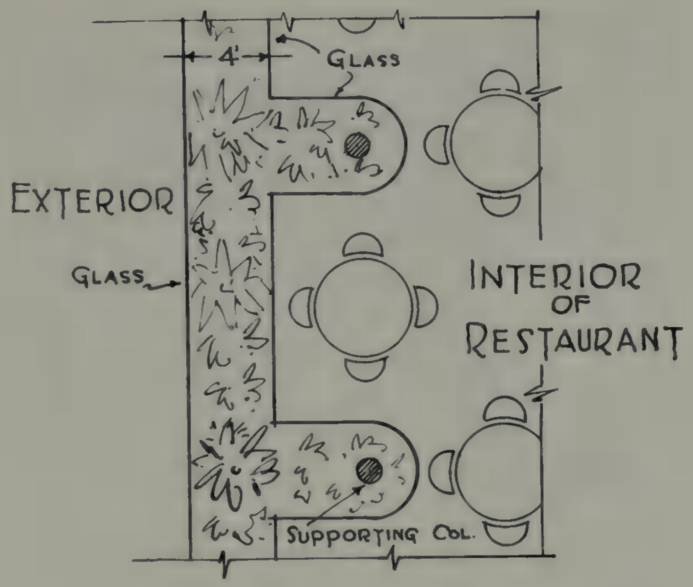


HANGING ARCHITECTURAL DRAWINGS:

A novel method of exhibiting architectural drawings was adopted at the exhibition in connection with the second International Congress of Architects held October 24-26 at Frankfurt-am-Main. Drawings were mounted on large zinc sheets, about 6 feet high, hung diagonally to the walls. This arrangement, with windows overhead, made good lighting possible and it also kept visitors moving along near the exhibits, not in the middle of the room.

PLANTS IN A DOUBLE WINDOW:

The architect Karl May of Frankfurt, Germany, has worked out an interesting fenestration in the *Palmengarten* (a tearoom, restaurant and ballroom *ensemble*). Between two systems of glass windows, continuous horizontally on a cantilever construction, plants and vines are allowed to grow. Essentially this idea is that of a greenhouse, elongated and made integral with the facade. To a person sitting at a table in the restaurant the effect is pleasing, especially at night when concealed lighting gives the flowers and plants a fitting display.



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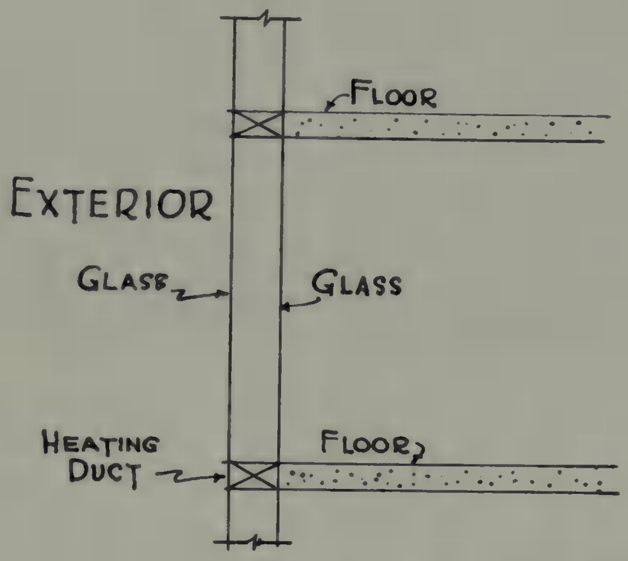
THE HEATING WITHIN TWO WALLS OF GLASS:

Heating of rooms by heated air within two outer walls of glass, as proposed for the New York Life Insurance Building by Corbett, Harrison and MacMurray, Architects, has already been experimentally worked out by Le Corbusier, according to Norman Rice of the office of Le Corbusier and formerly instructor at the University of Pennsylvania. The building with cantilever construction is now being built in Moscow. It has double glass wall surfaces, fixed so as not to be opened. Between and at each floor level are heating ducts, thermostatically controlled to maintain a constant temperature. The interior thus remains constant, and it is said that there is slight heat loss under this system. There are no heat coils or ducts other than these to supply heat to the interior. Air for ventilation is refiltered.



·SECTION·

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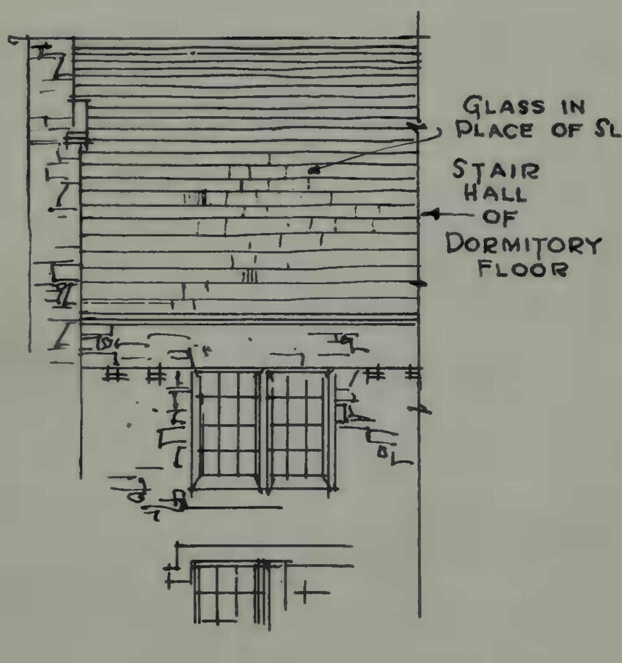
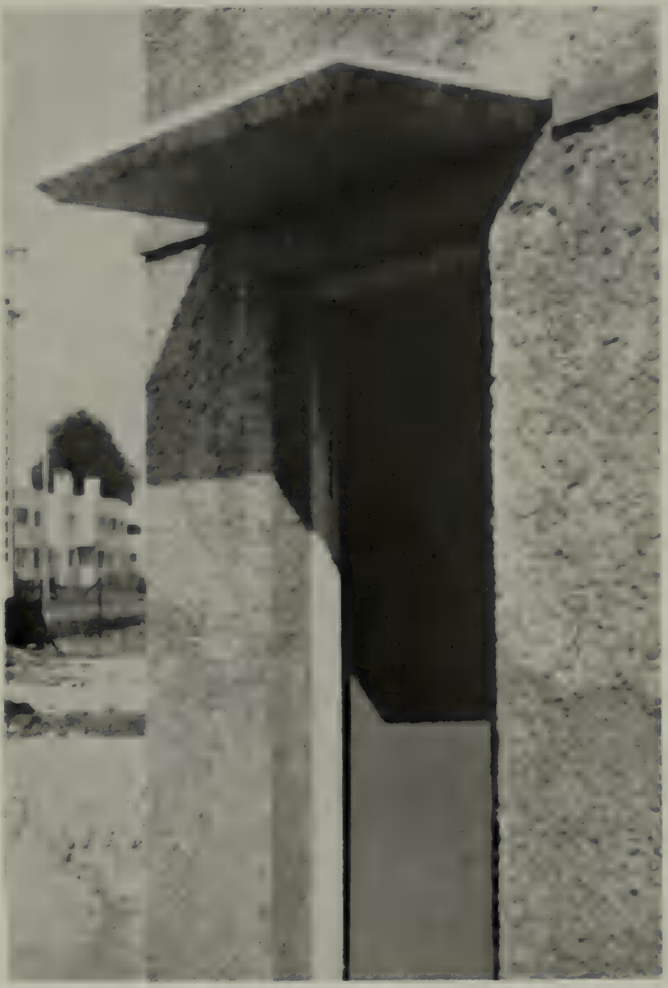
GLASS "SLATE"

The office of Charles Z. Klauder, Philadelphia, has made use of glass in place of slate over a limited area of roofs of dormitories in order to admit light to stair halls on top floors. This is done where an unbroken slope of roof is preferred to dormers. The glass is specially made to slate sizes; it is green in color, of the same thickness as heavy slate, and is attached by means of copper wire.





DOOR-HOOD

SILVER END GARDEN VILLAGE
THOMAS S. TAIT, ARCHITECT, OF
SIR JOHN BURNET AND PARTNERS

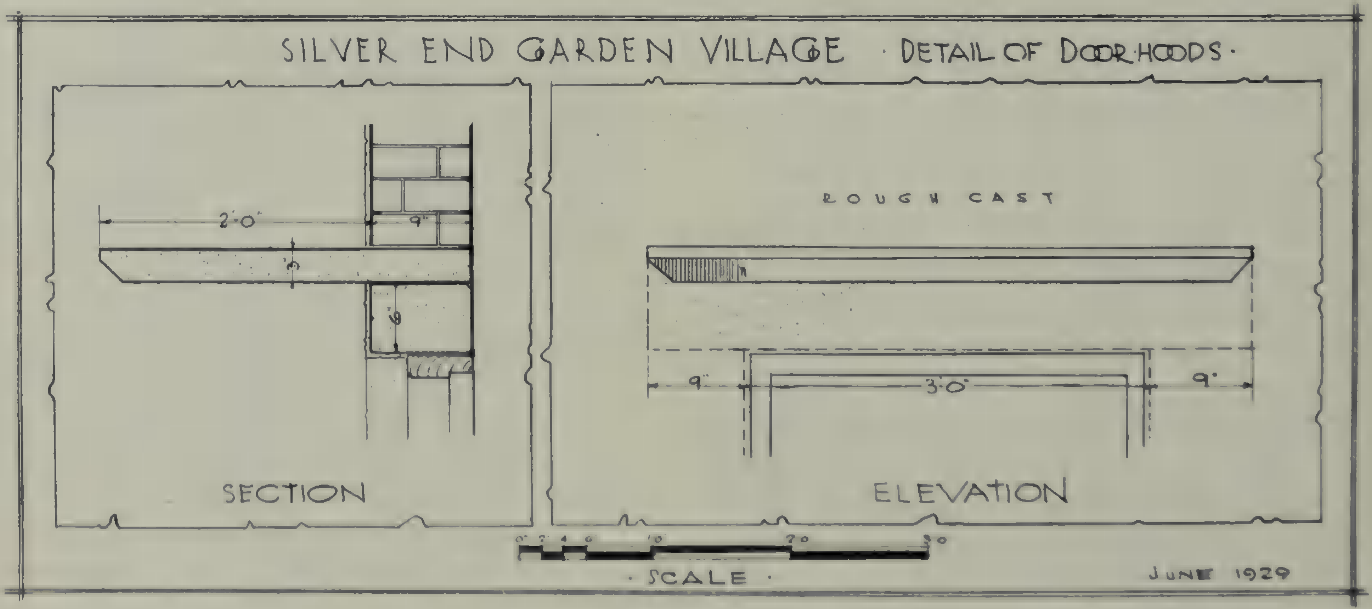
RUBBER STAMP INDICATION

Mart Stam, Architect, has adopted rubber stamps made to scale to indicate beds, chairs and toilet fixtures "to eliminate unnecessary and tedious drafting." Also, for every job a stamp is made of the block plan which then appears on every drawing. An arrow indicates to what part of the building each drawing refers and thus a draftsman seeking a certain sheet loses no time trying to interpret every drawing.

Colored tags clipped to the drawings serve to keep different jobs separate and also are quickly identified.

ONE CONCRETE SLAB

A door-hood of single slab of reinforced concrete at the garden village of Silver End, England. This industrial village was erected by the Crittall Manufacturing Company midway between their Braintree and Witham factories, where employees can live in fresh air and comfort and within easy distance of their work. The majority of houses are sold on a twenty-year purchase system, the weekly rental being approximately $4.00 for a non-parlor type and $4.50 for a parlor type; this includes water, ground rent and improvements.



BULLOCK'S WILSHIRE DEPARTMENT STORE LOS ANGELES

JOHN AND DONALD B. PARKINSON, ARCHITECTS

LOCATION:

On Wilshire Boulevard, a principal motor artery for fashionable traffic and outside the congested business district.

•

THE PROGRAM:

The erection of a five-story building with provision for a future increase to ten floors.

•

PLAN ARRANGEMENT:

The building is not a department store in the ordinary sense but really consists of five floors of specialty shops operating as a single business unit. The building is placed on a third of a city block, the balance serving as free parking area for customers, who, as they drive to the motor entrance at the rear, are relieved of their cars by attendants. This motor entrance and the main entry from Wilshire Boulevard give access to a great central hall. This hall is treated as a clean cube with high marble walls accented by vertical light panels of glass and metal. Each specialty department is equipped with lounging chairs, smoking equipment, mirrors, and it is an important feature of the selling plan that each department has a complete line of accessories to the merchandise in which it specializes, thus enabling the purchaser to be completely outfitted at any place in the store. All cash and wrapping desks are concealed as are also the stock rooms.

•

INTERIOR DESIGN:

The interiors were designed by Feil and Paradise, collaborating with J. D. Peters, Architect.

The sports-wear department is panelled in sycamore trimmed with copper bands. The floor is of travertine. The lighting is in the ceiling and columns. The west wall is decorated by Gjura Stojana with an abstract "sports" mural.

The riding shop is narrow and high, its white walls contrasting with dark oak cabinets and decorated reliefs by the sculptor, Meyer Kreig.

The lingerie department on the second floor has walls faced with glass plates covering gold and silver mirrors. The millinery salon is treated in silver and crystal while the fur room has walls of cork panels and carries strong red and black color in furniture and rugs.

The third floor departs from the individualized treatment of the specialty shops on the first and second floors. Devoted to college and high school girls' wear, it is treated openly as a whole. Lighting is incorporated in the ceiling. Natural color walnut, maple, and satin wood are used here, and carpet patterns and ceiling panels aid the traffic from room to room.

The fourth floor, designed by David Collins, is devoted to the child. It contains many small rooms such as the book and toy departments, children's and infants' wear.

On the fifth floor are located a large tea room, candy counters, and lounges.

•

MATERIALS:

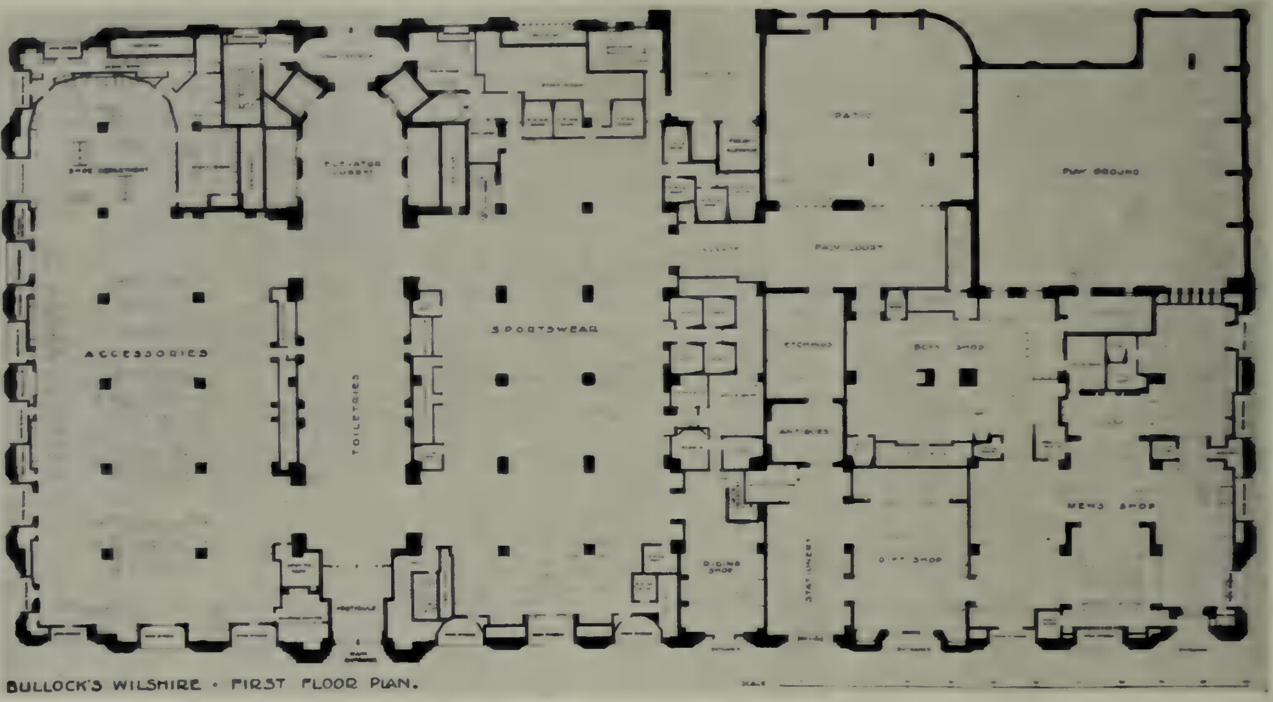
The exterior face of the building is terra cotta, trimmed with deep-green copper spandrels.

Interiors are variously treated with metal, marble, plaster, wood, and glass.

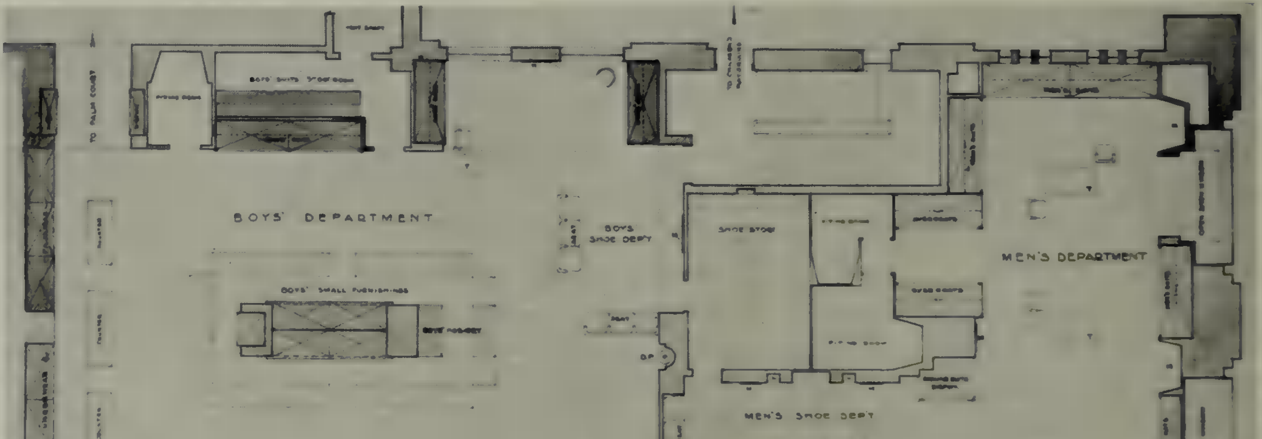
Elevator doors are of copper, brass, and gunmetal.

Floors of travertine and of linotile in gray and black.

Fur room walls of cork.



FIRST FLOOR PLAN



MEN'S SHOP ON FIRST FLOOR

BULLOCK'S WILSHIRE STORE, LOS ANGELES

JOHN AND DONALD B. PARKINSON, ARCHITECTS

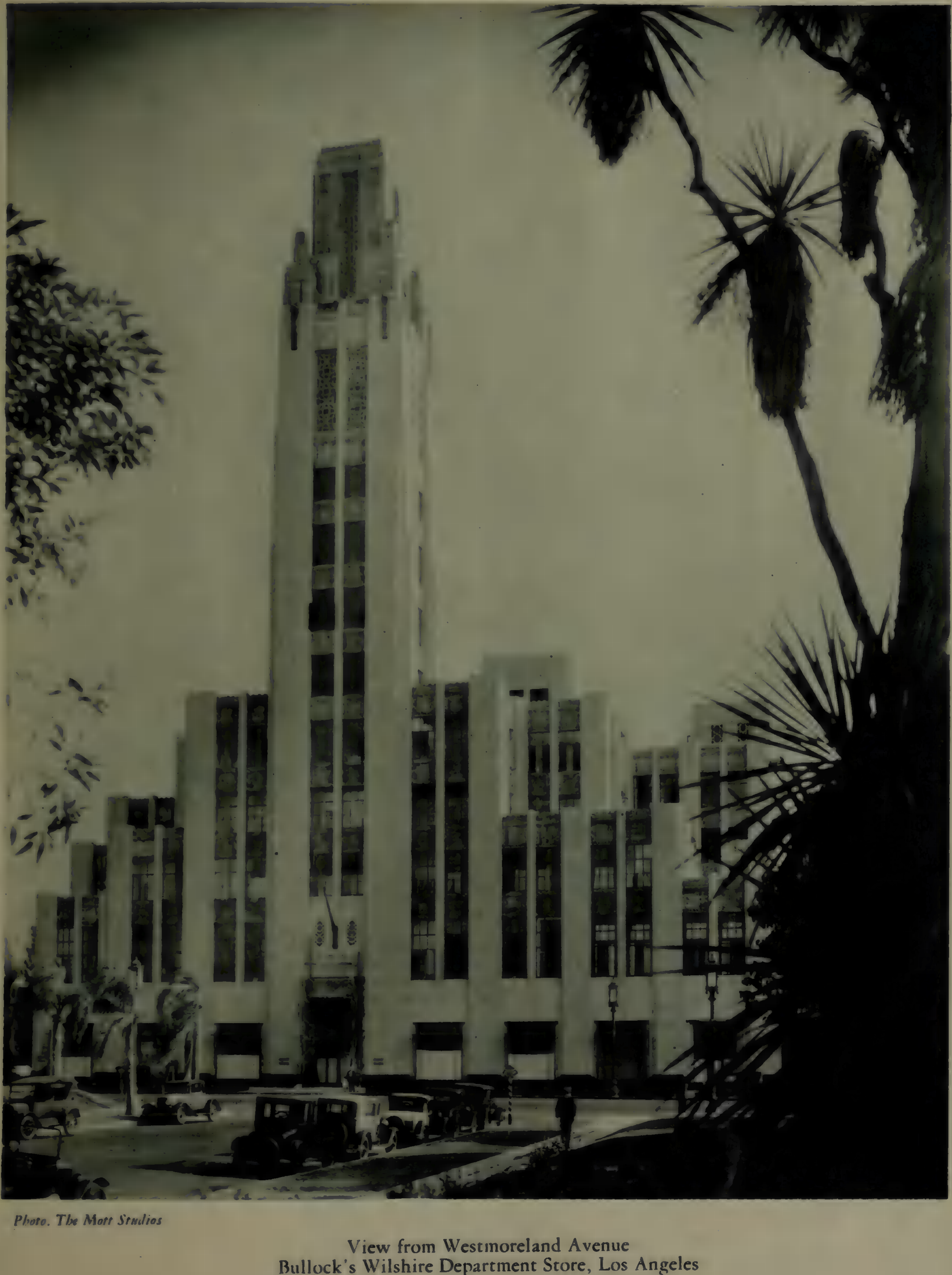


Photo. The Mott Studios

View from Westmoreland Avenue
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

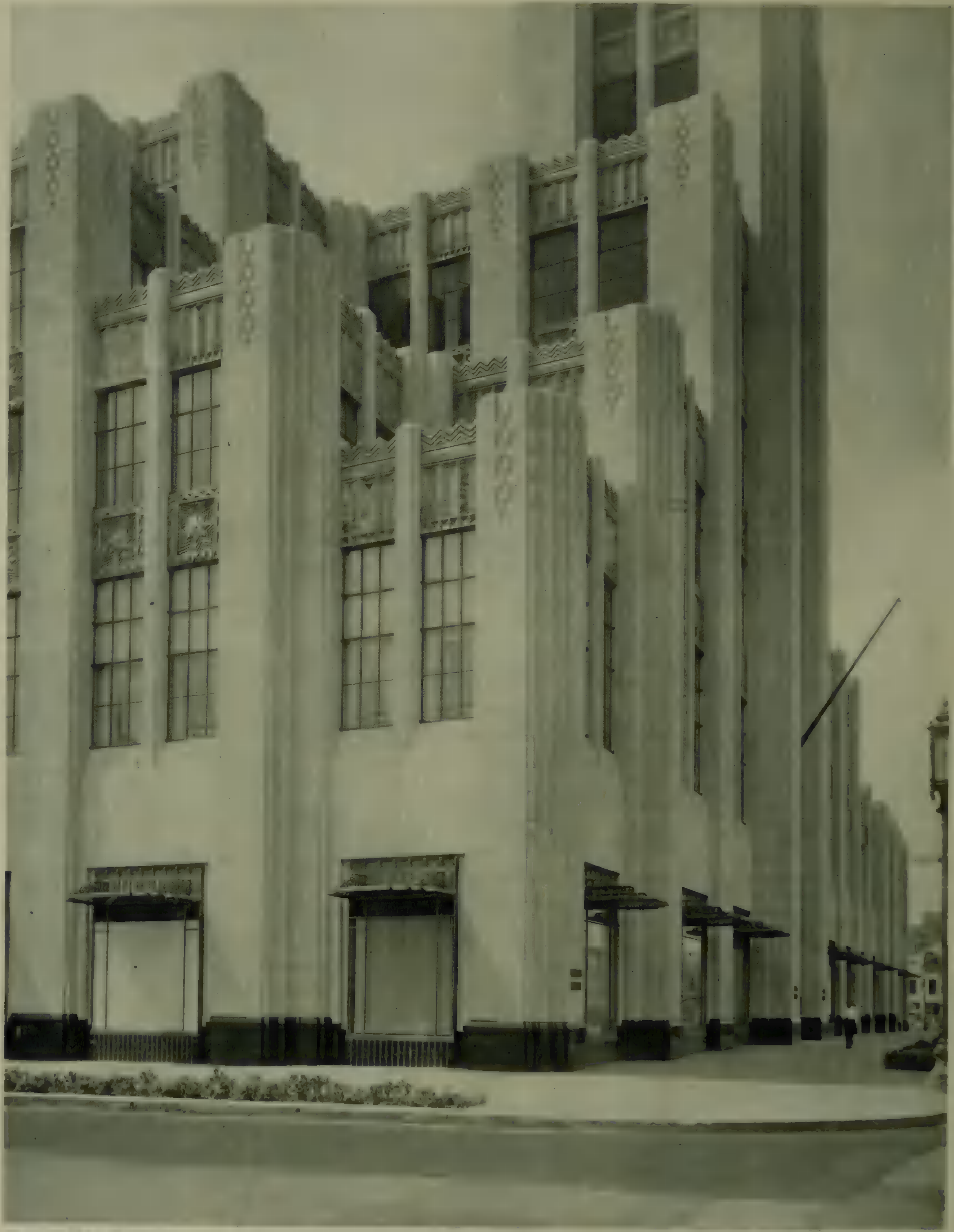


Photo. The Mott Studios

Angle with Set-backs
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

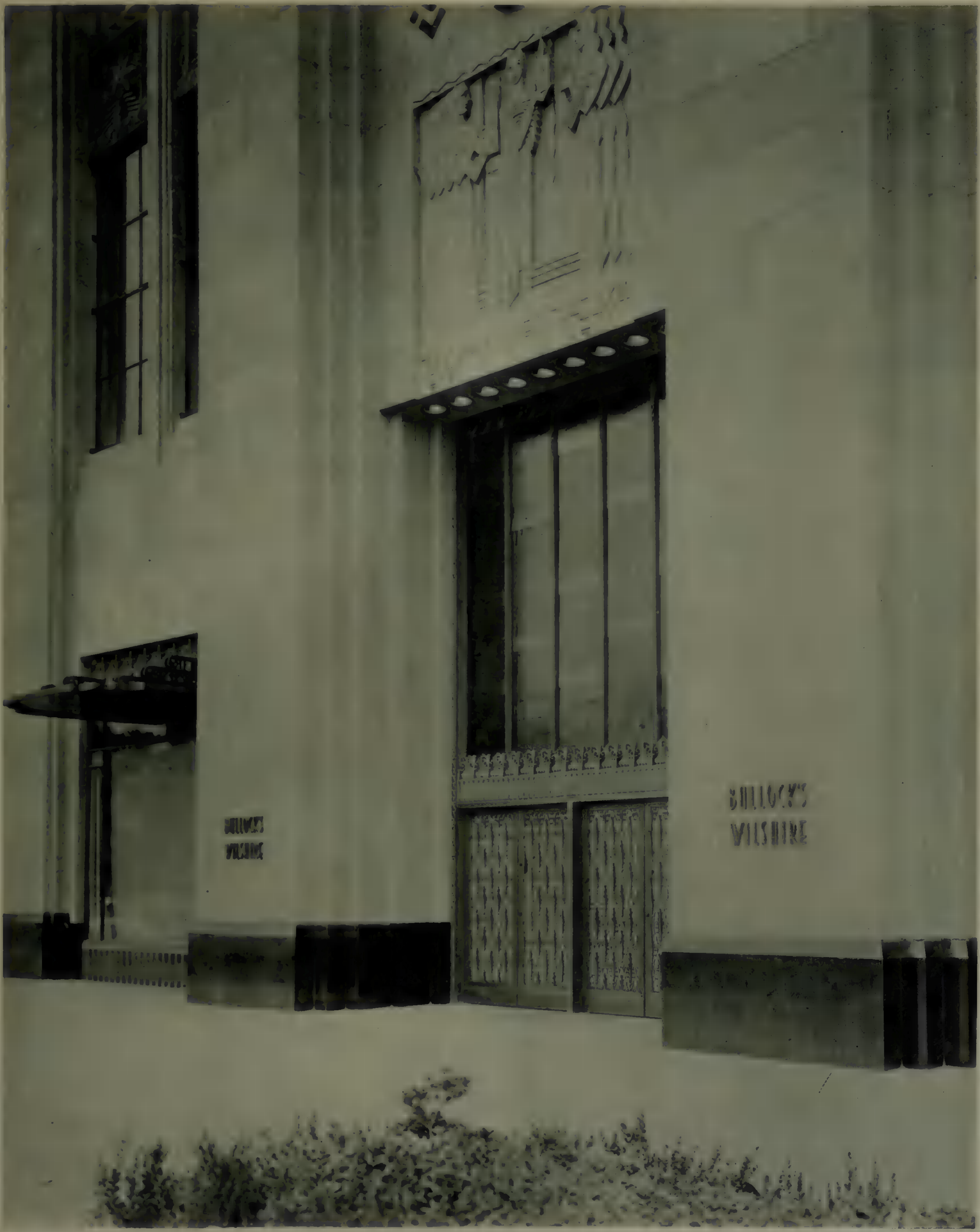


Photo. The Mott Studios

Front Entrance
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

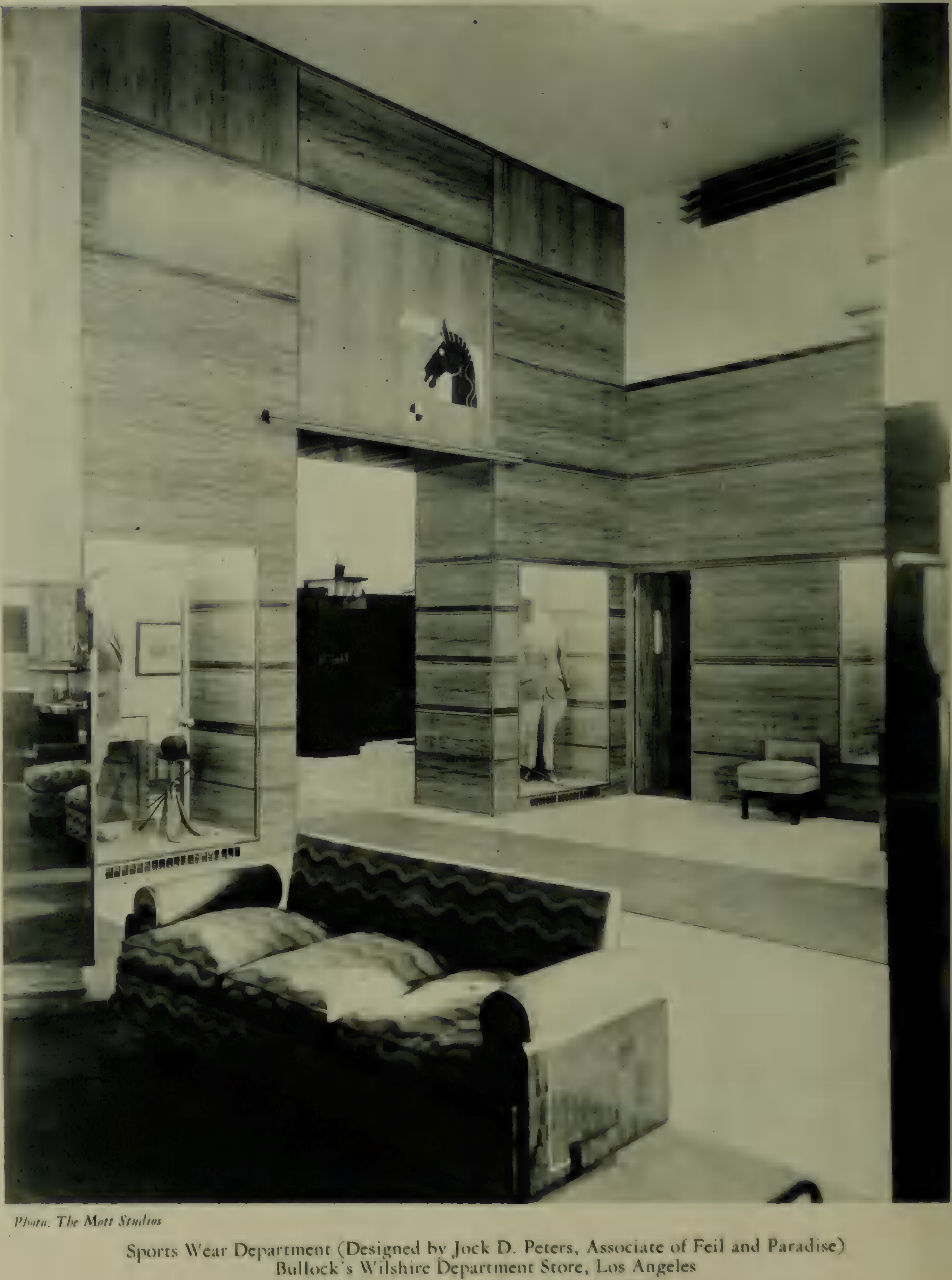


Photo. The Mott Studios

Sports Wear Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

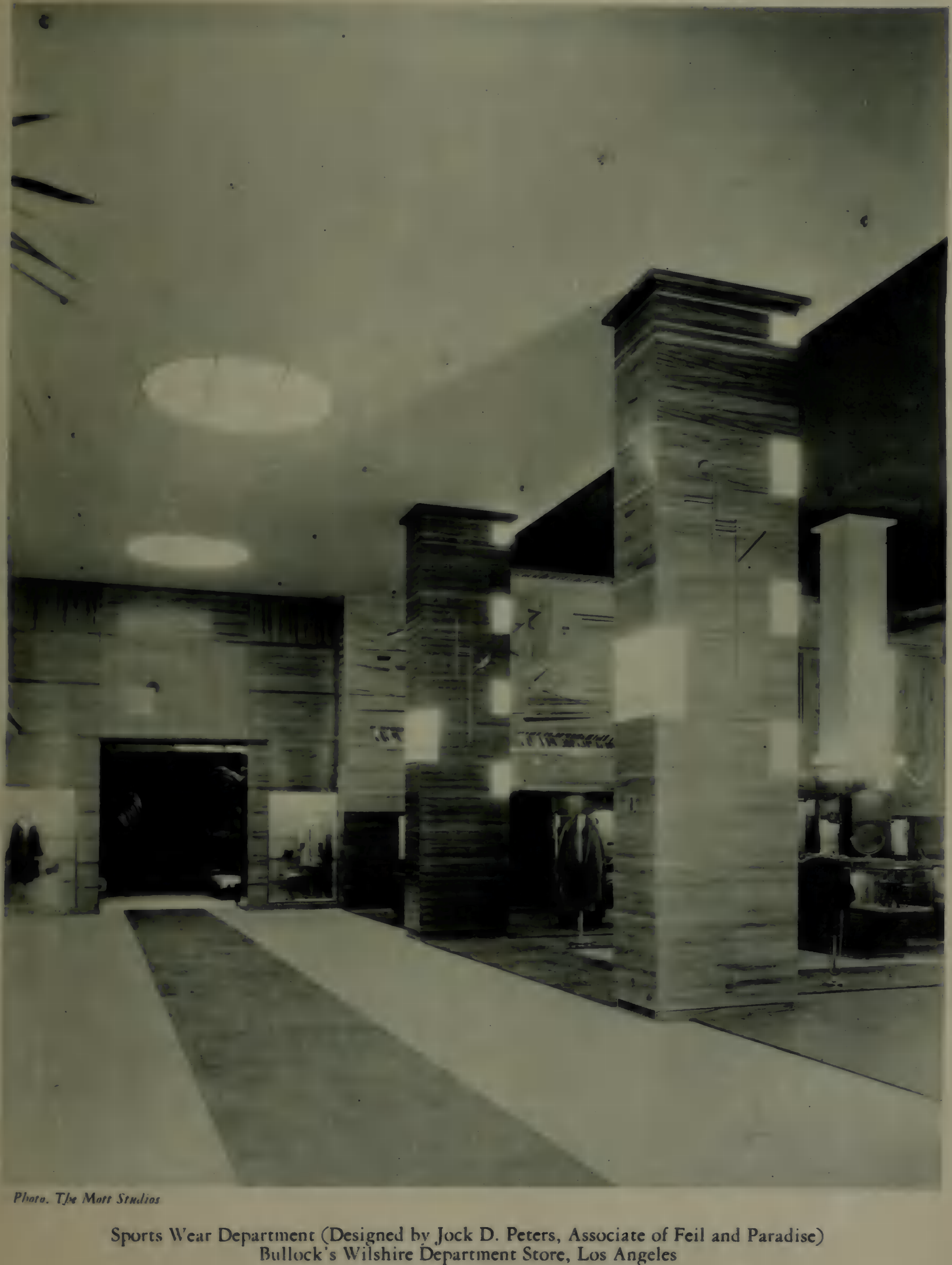
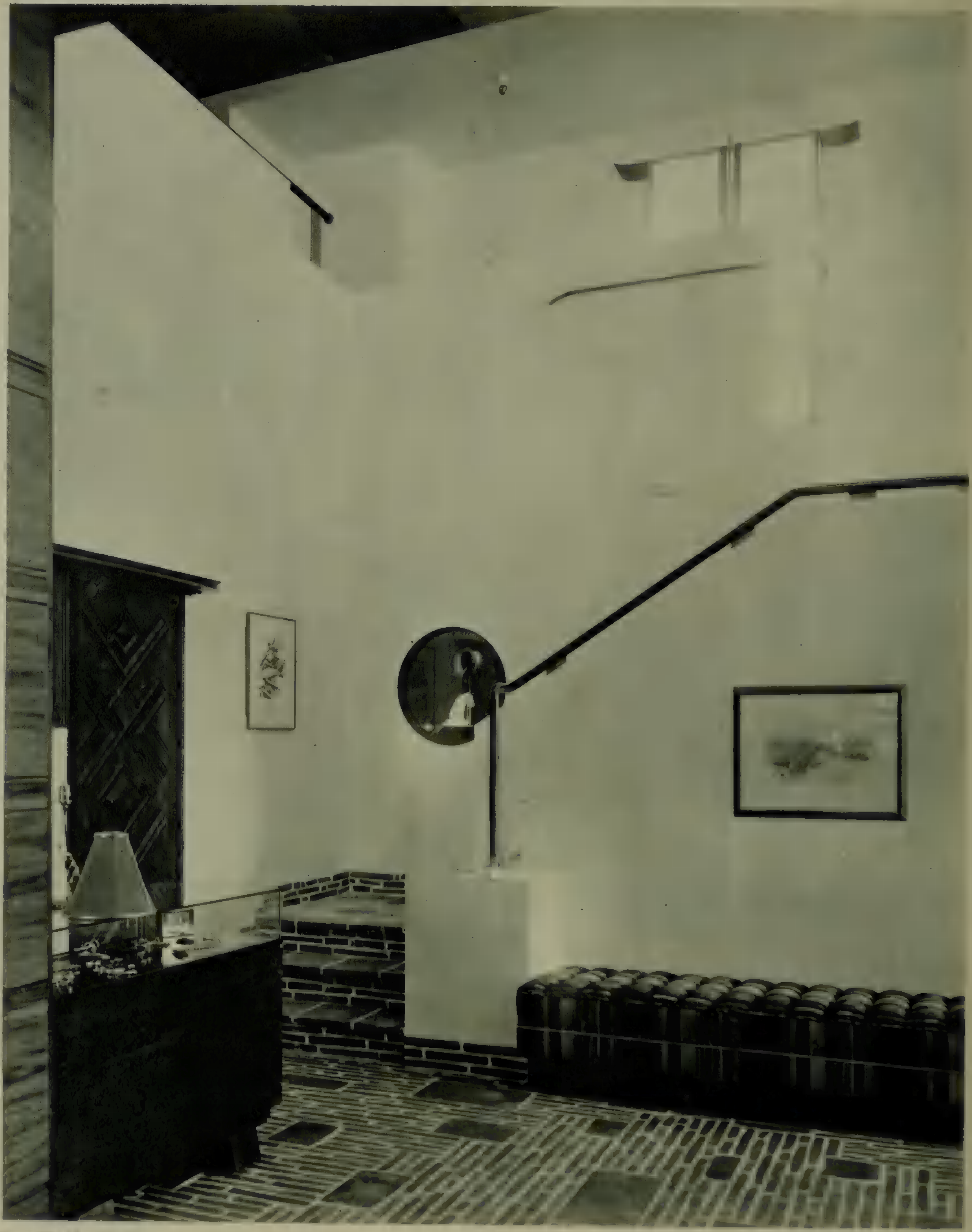


Photo. The Mott Studios

Sports Wear Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS



Photo, The Mott Studios

Corner of Riding Shop (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

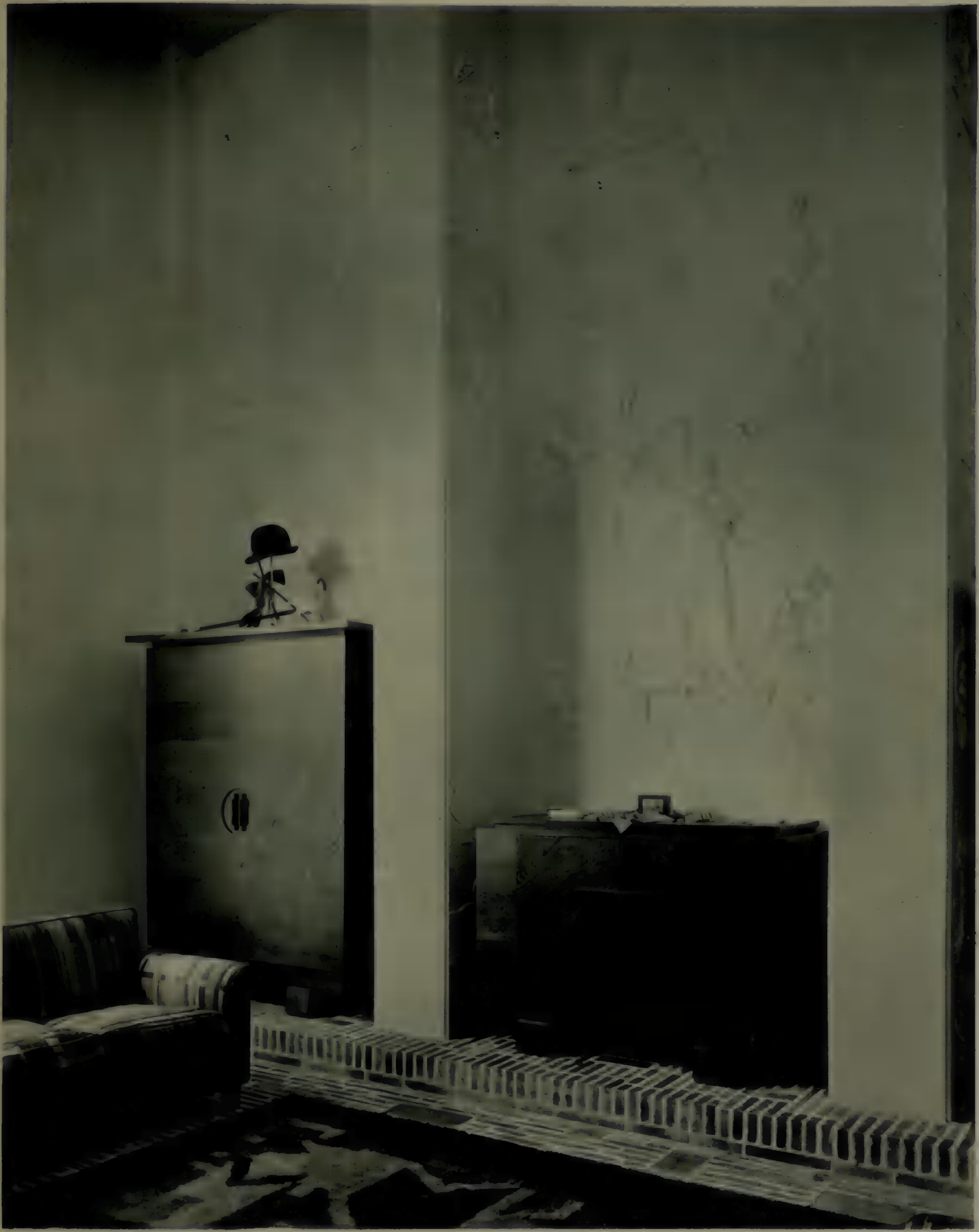


Photo. The Mott Studios

Corner of Riding Shop (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

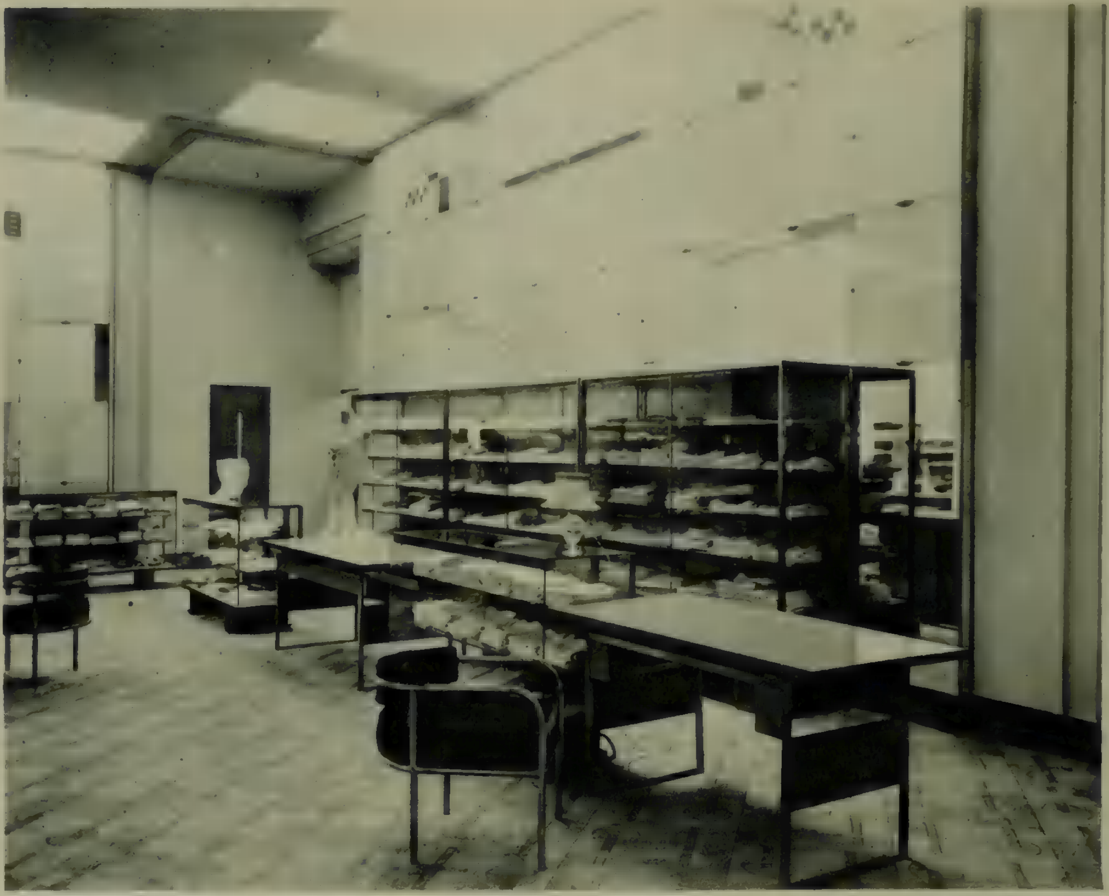


Photo. The Mott Studios

Northeast Corner of Lingerie Department
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

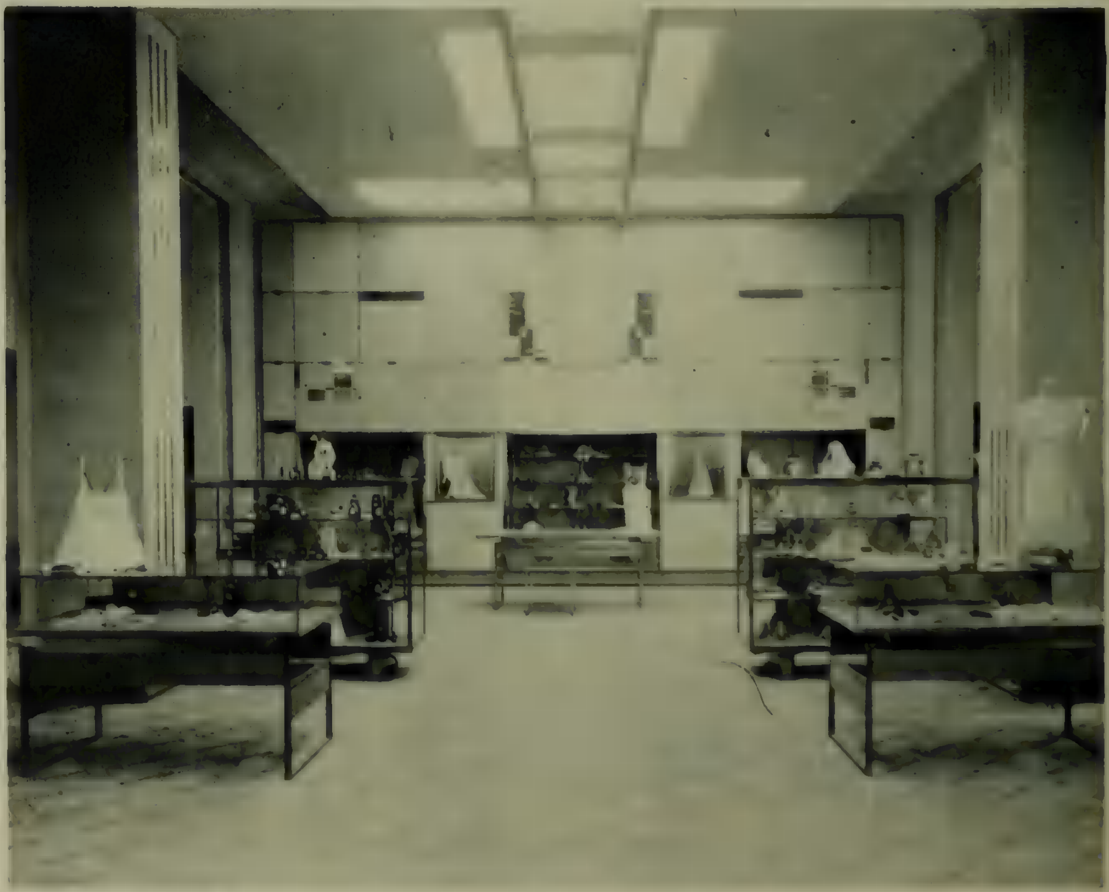


Photo. The Mott Studios

South Wall of Lingerie Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

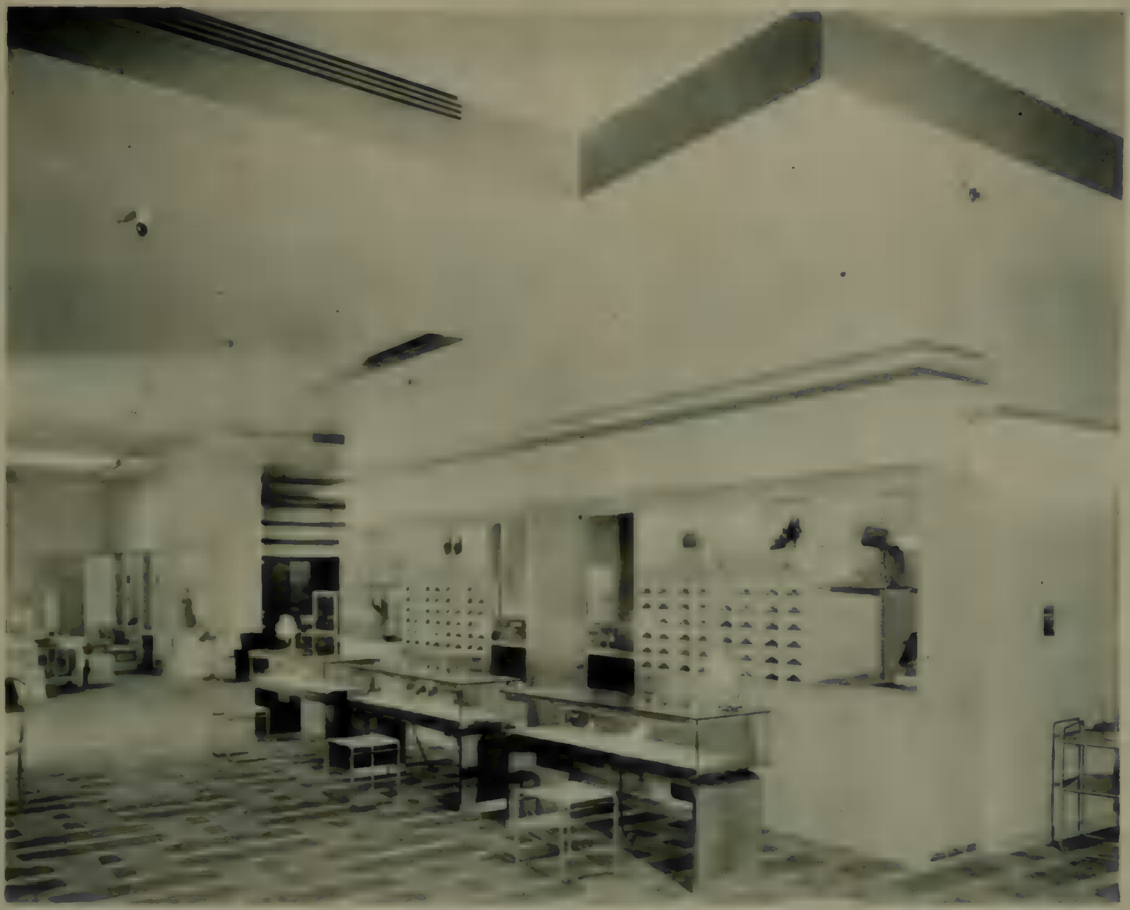


Photo. The Mott Studios

Display Cases in "Collegienne" Shoe Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

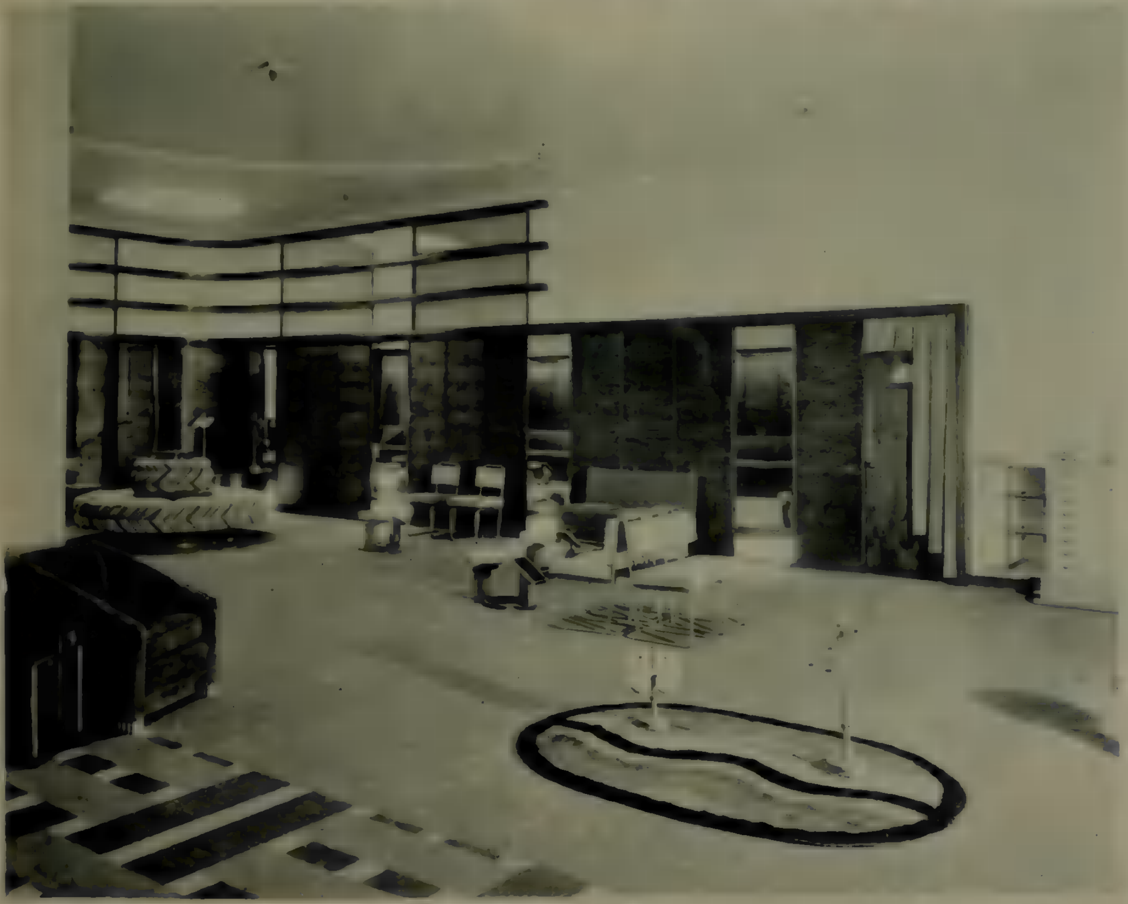


Photo. The Mott Studios

"Collegienne" Shoe Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

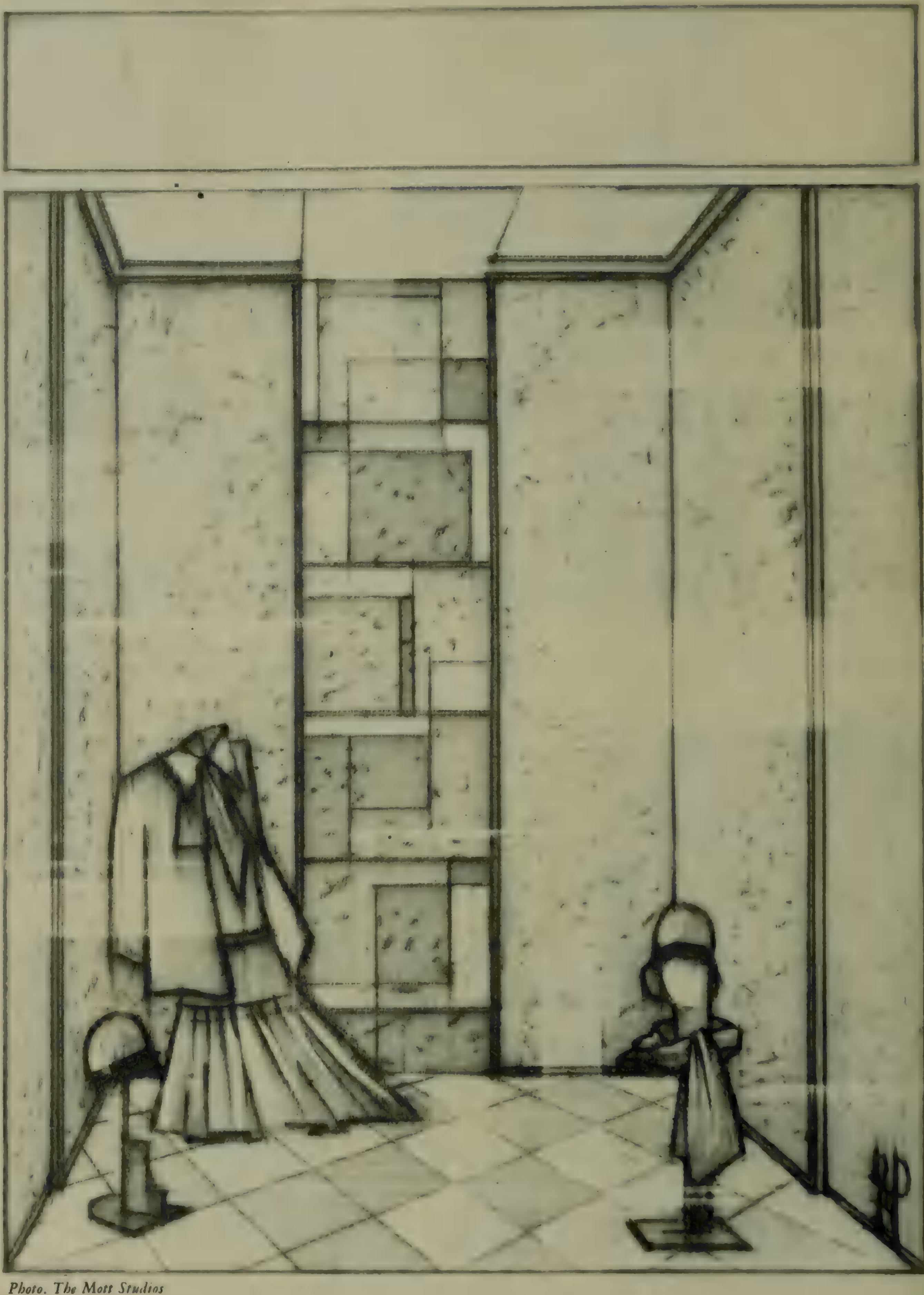


Photo. The Mott Studios

Show Window (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

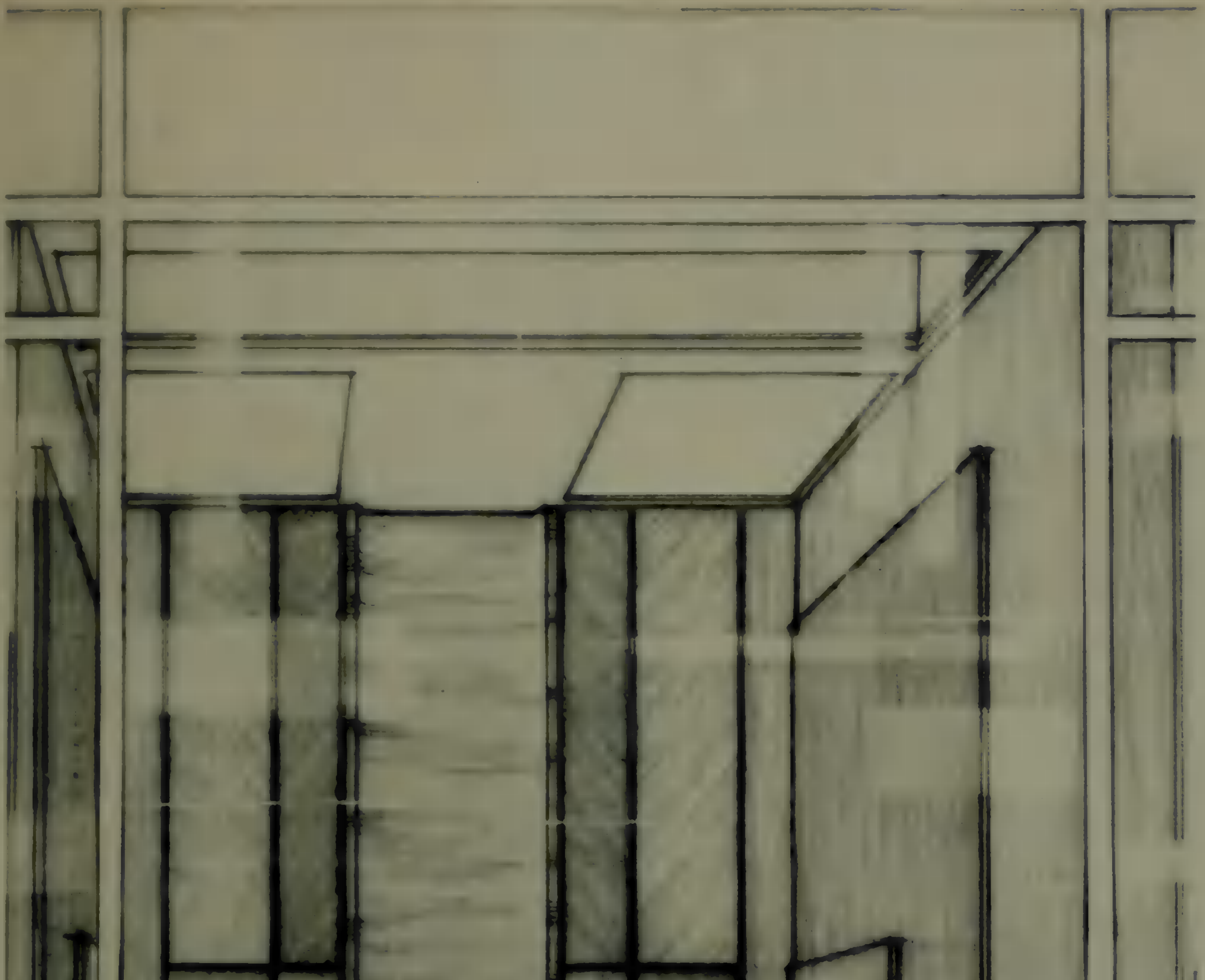


Photo. The Mott Studios

Show Window (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

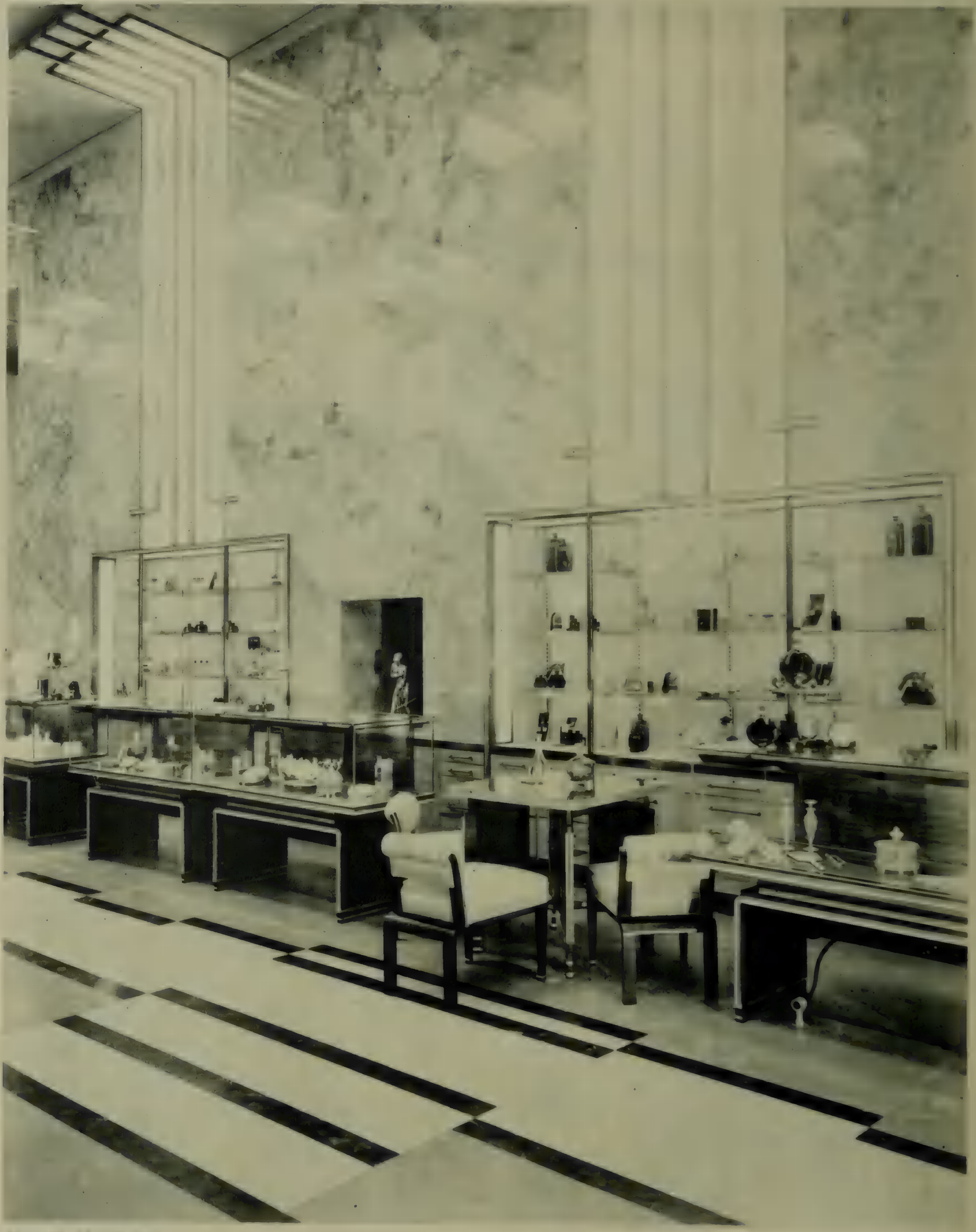
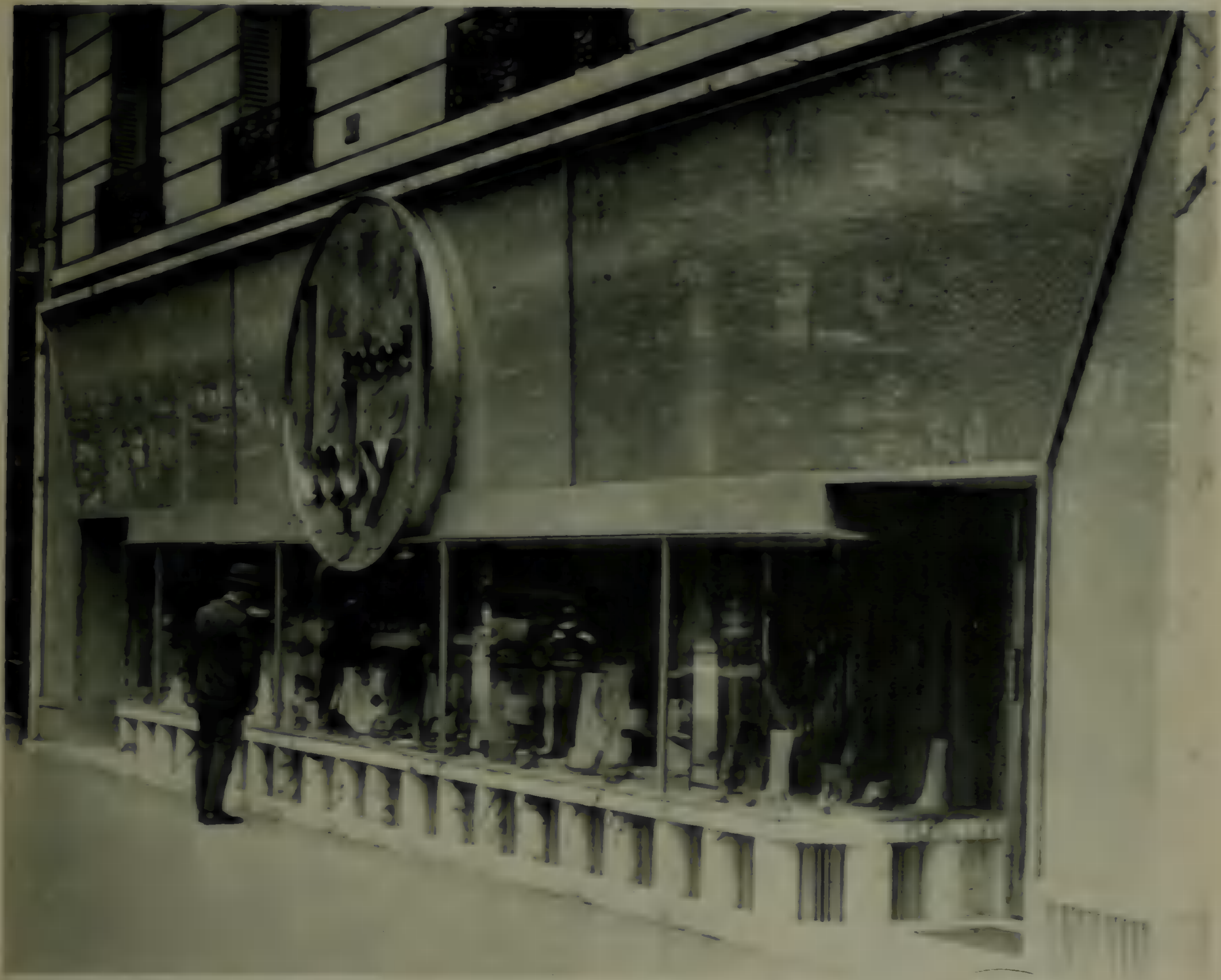


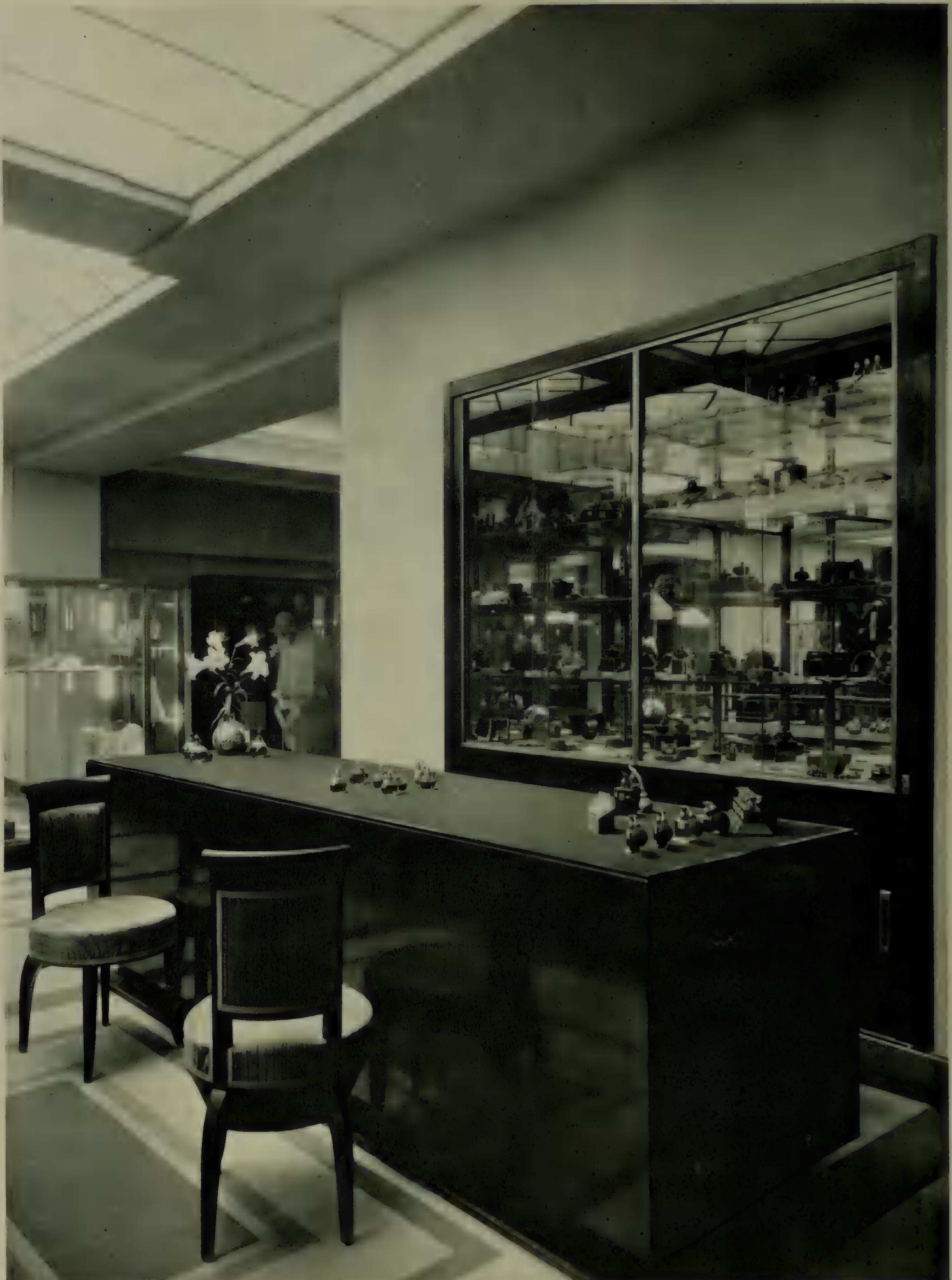
Photo. The Mott Studios

Display Cases in Toiletries Department (Designed by Jock D. Peters, Associate of Feil and Paradise)
Bullock's Wilshire Department Store, Los Angeles
JOHN AND DONALD B. PARKINSON, ARCHITECTS

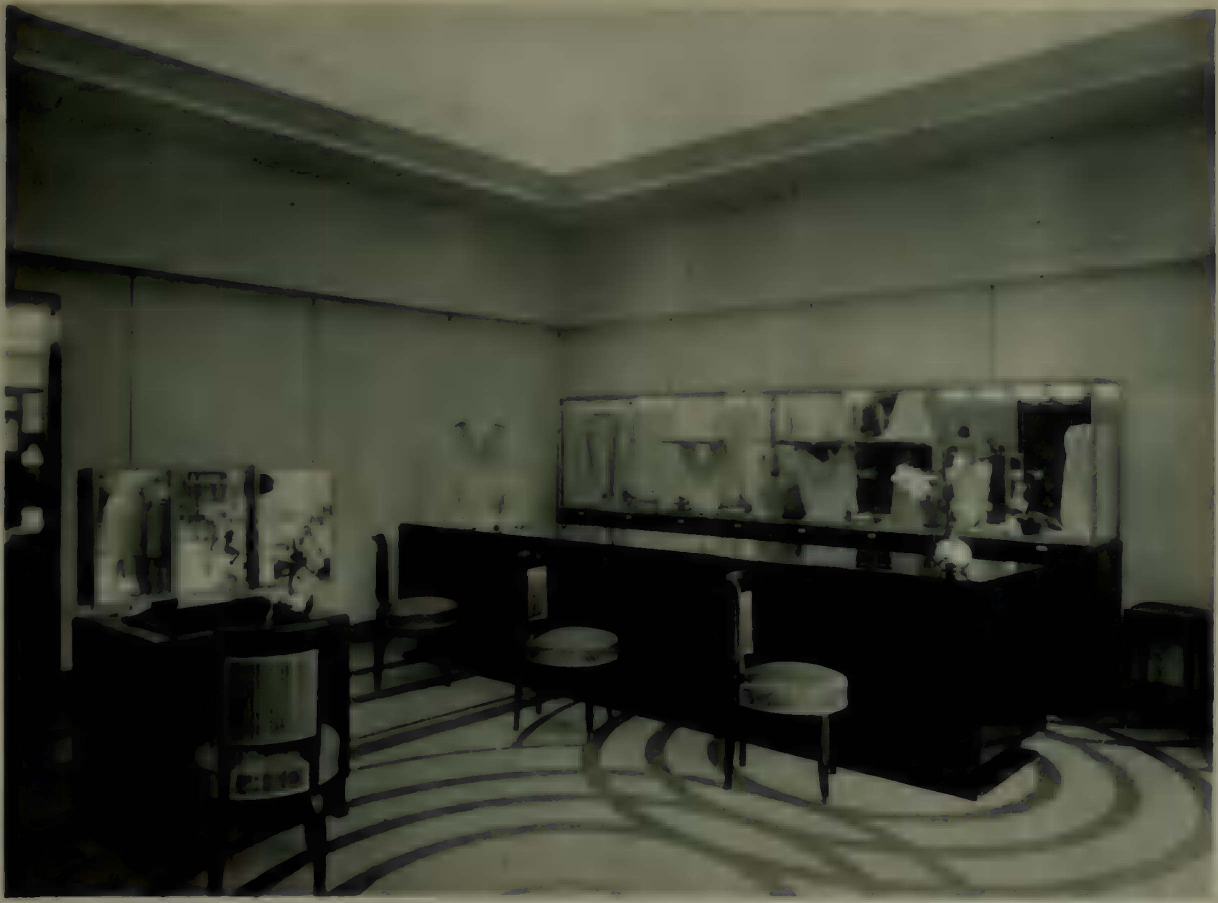
PARIS SHOP FRONTS AND INTERIORS



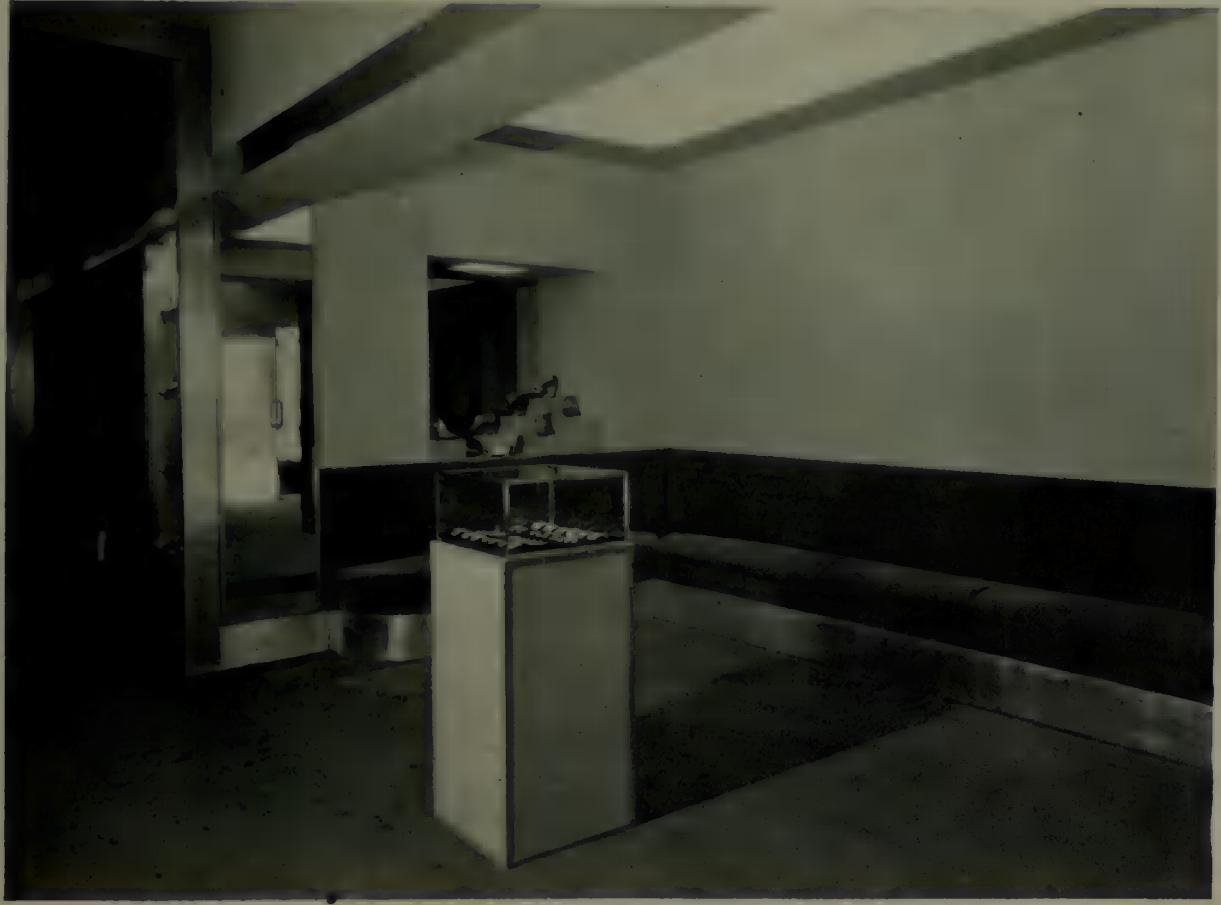
Robert Bely Department Store, Paris
PIERRE PATOUT, ARCHITECT
Greenish tinted glass, black and white streaked marble, chromium plate



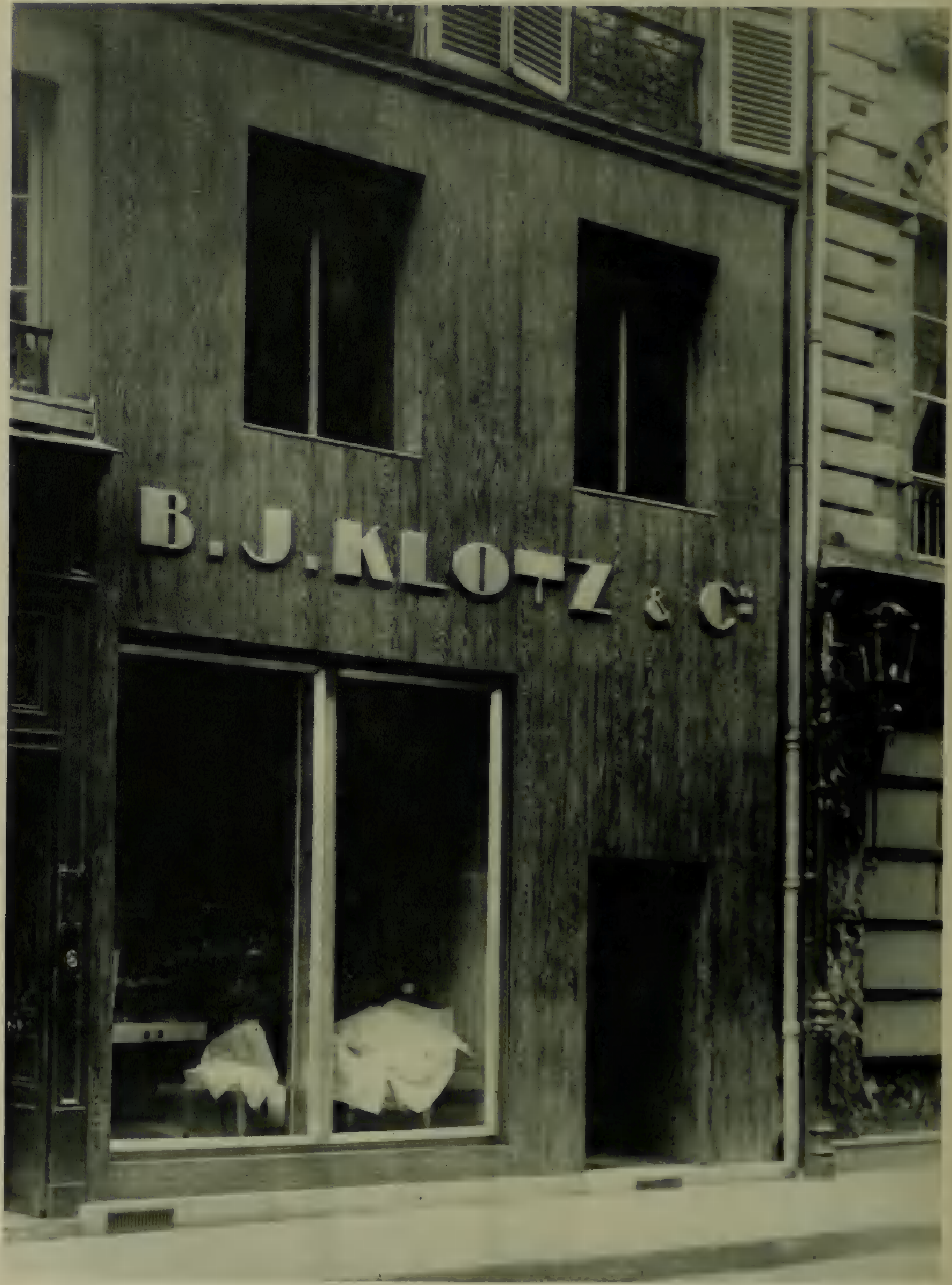
Perfume Department
Robert Bely Department Store, Paris
PIERRE PATOUT, ARCHITECT
Walls stone-gray, wood-work black, upholstery gray and buff streaked mixture; floor covering rubber with design in light gray, slate and blue



Lingerie Department
Robert Bely Department Store, Paris
For color scheme, see opposite page



Shoe Shop "Enzel" Paris
RAYMOND NICHOLAS, DESIGNER
Stucco Walls and Stand with aluminum alloy strips; ceiling illumination through white opaque glass, shoes in wall recess are on marble blocks, upholstery green velvet

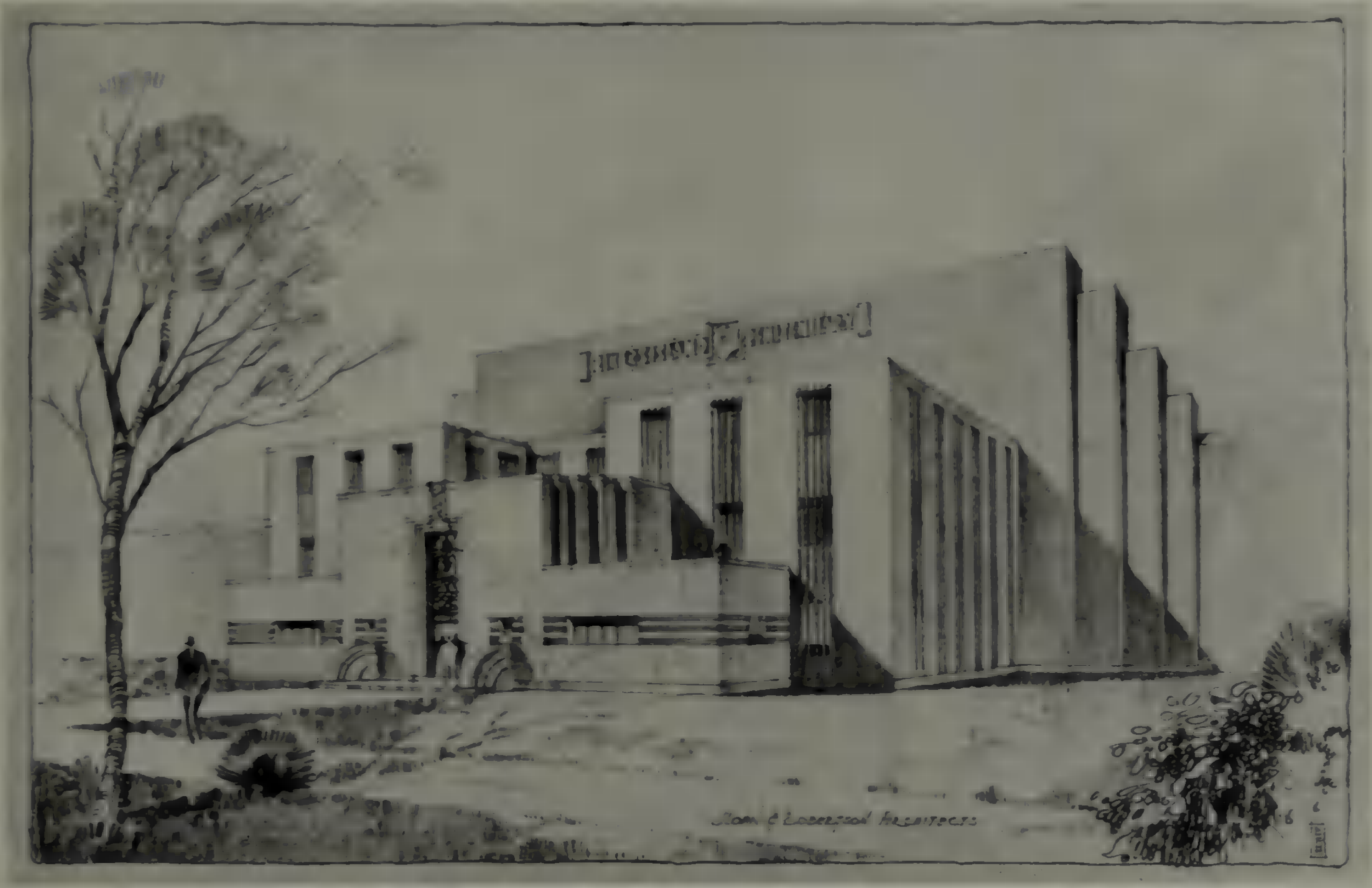


B. J. Klotz & Co., Decorators, Paris; B. J. Klotz, Designer
Facade in Oak

THE ARCHITECTURAL RECORD

TECHNICAL NEWS AND RESEARCH

JANUARY · 1930



Riker's Island Penitentiary, New York, Sloan and Robertson, Architects

PRISON ARCHITECTURE

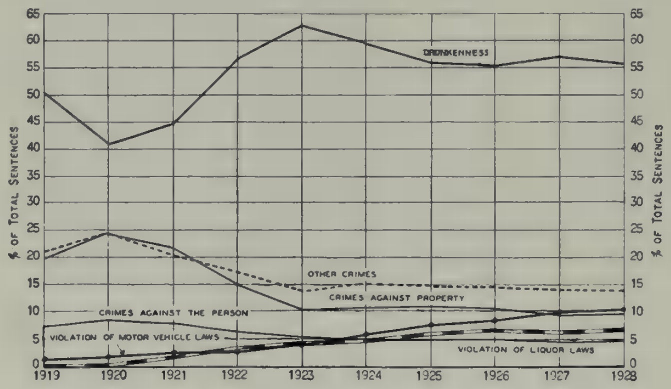
Previous Studies: Swimming Pools, Storage Garages, Apartment Houses, The Small House, Airports, Store Buildings, Kitchen Planning, Sound Proofing the Hospital, Planning High School Buildings, New Construction Methods, The Country House, Planning the Art Museum.

Future Studies: Principles of Remodeling, The Motion Picture Theatre, and others to be announced.

STUDIES OF PRISON POPULATION

IN RELATION TO SIZE AND LOCATION OF PRISON

Department of Correction, The Commonwealth of Massachusetts



C. DIVISION OF POPULATION ACCORDING TO CRIME COMMITTED

1. *Analysis Based on Yearly Population*

Offense	Percentages of Total Population	Probability of Attempt to Escape Negligible	Questionable or Considerable
Drunkenness	53.5%	53.5%	2.6%
Liquor laws	12.6	10.	
Motor vehicle	9.6	9.6	6.8
Larceny	6.8		
Non-support	4.8	4.8	
Assault and battery	2.9	2.9	
All other offenses	9.8		9.8
		80.8%	19.2%

2. *Analysis of the Cross-Section on a Typical Day*

Predatory crimes			20.6%
Liquor	15.4%	15. %	
Non-support		15.4	
Motor vehicle		11.7	.7
Assault*	10.7		
Assault with intent to rape†	8.	6.	2.
Drunk		7.	
Narcotic		2.	.8
Vagrancy and loitering		2.3	
Other offenses			6.1
		69.4%	30.6%‡

C. OFFENSES COMMITTED AND PROBABILITY OF ATTEMPT TO ESCAPE (*Safe-Guards to be Provided*)

If the architect has to take maximum precautions only to prevent jail breaks of possibly 15% to 30% of the prisoners, and less precautions to prevent escape of possibly another 15% to 30%, it leaves him comparatively free to design a building which will have proper light, ventilation and heating, and will be sanitary, efficient and *economical*. What is even more important from the penological standpoint is that he can provide for the proper classification and segregation of the different classes of prisoners.

Different treatment for different classes of prisoners is highly desirable and the breaking up of the prison into small units is a mechanical device which aids in breaking up the treatment into small units.

(Further discussion of this point under Classification.)

It is quite possible that for the group not requiring special security provisions, accommodations similar to "model working men's hotels" such as the Mills Hotels, Salvation Army Barracks, etc., might be provided, with enough work so that a sentence is not a rest.

D. PHYSICAL AND MENTAL CONDITION OF PRISONERS

The length of sentence and crime committed are the dominating factors in determining the location and type of prison to be built, but the physical and mental classification of prisoners will influence the interior planning.

An estimate should be made of the number of prisoners suffering from various diseases and provision made for isolation and treatment of communicable and venereal diseases. This is especially important in women's prisons, where a considerable percentage will require treatment. (See graph and plan.)

Mental defectives and criminal insane should be kept separate from other prisoners and when possible, sent to special institutions.

E. INDUSTRIAL QUALIFICATIONS

An analysis of the industrial qualifications of prisoners, if considered in the light of the length of sentence, would indicate what prison industries were possible, but the decision as to what prison industries were desirable should be based on "State's use" market, with due regard to the possible employment of the prisoners in that industry in the same section of the country after release from prison. As the market for prison goods is generally restricted to "State's use", and is frequently affected by prison industries in other states, it is highly desirable that the architect and the Prison Board obtain expert advice on this subject. Such advice may be obtained free from the National Committee on Prisons and Prison Labor.

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* Generally for fighting when drunk.

† Generally for relations with a mature girl under legal age who consented to sexual relations.

‡ The Massachusetts report states that the analysis of offenses committed indicated "that probably less than 15% were socially dangerous." (For a State or federal penitentiary this might be 20 to 35%). "Some of these men have been thoroughly institutionalized and have learned the advantages of being a good prisoner. As a group, however, they are the ones who will require careful supervision and for which at least a *part of the institution must be made secure. The remainder should not* require the repressive supervision which sometimes pervades a whole institution because of a small number who do need strict supervision."

IV. TYPES OF BUILDINGS FOR VARIOUS GROUPS

Division of a prison into units with varying degrees of security presupposes that prisoners are properly classified upon admittance and that the prisoners will be treated in accordance with modern principles of penology. You cannot have proper treatment of prisoners without properly planned buildings, and properly planned buildings will not be satisfactory unless there is intelligent classification and handling of prisoners.

It might be suggested here that prison authorities will sometimes find it advantageous to change their administrative routine with the addition of new buildings. A routine should not dominate new plans that had its inception in the very fact that the old buildings permitted nothing better.

A. BUILDINGS GIVING MAXIMUM SECURITY

As most prisons are built on the assumption that all prisoners require maximum precautions to prevent escape, an examination of existing prisons (prison farms excluded) will indicate the type of building considered necessary to prevent prison escape. It should be borne in mind that in practically all cases the prison building is surrounded by a high wall (either the wall of a building or free standing).

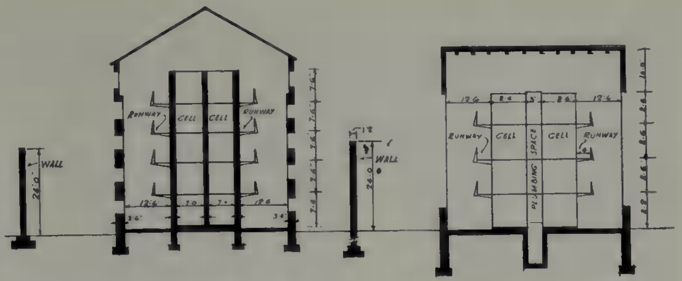
It is desirable that the group requiring *maximum* security be housed in a building connected with the classification prison, where one exists, in order that they may receive special supervision and treatment. Included in this class is provision for the dangerous criminal insane, preliminary to transfer to special prisons for this class.

These prison buildings may be roughly divided into three classes:—cell block within a cell house, cell house with cells that have windows, and a combination of these two types.

1. *The cell block* entirely free from, and yet enclosed within, a cell house may be taken as typical of American prison architecture. This type originated at Auburn, New York, about 1800 and has since been largely copied throughout the country. The earlier prisons of this type had no sanitary conveniences in the cell; many of them still use the bucket system.

The advantages claimed for this type are that escape is made doubly difficult and administration and handling of prisoners is simplified. This type, however, is not recommended except possibly for maximum security use or for use as a punishment building within the prison, subjecting the prisoner to the demeaning effect of the animal cage type of construction.

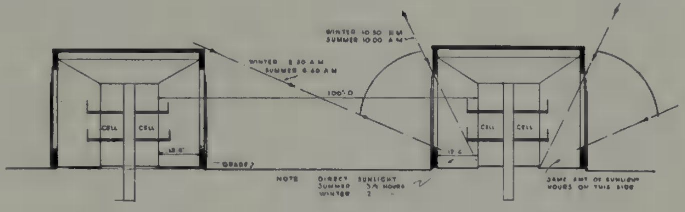
The objection to this type is lack of direct sunlight in the cells, and faulty heating and ventilation. Hundreds of thousands of dollars have been spent on the installation of *forced ventilation* systems which are seldom used due to the cost of operation. When



CELL HOUSE, 1820. CELL HOUSE, 1929

OLD AND NEW TYPE OF CELL HOUSE AT SING SING, N. Y.

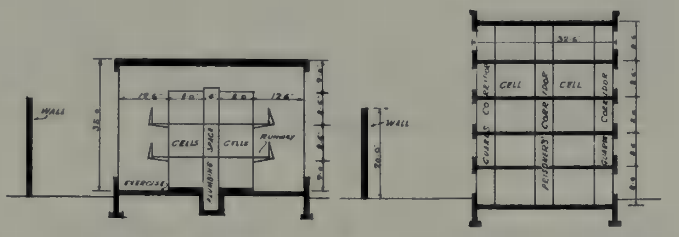
The new type has larger cells, better light and ventilation, and individual plumbing. The fundamental principle of both types is the same



CROSS SECTION THRU CELL BLOCKS SHOWING ANGLES OF SUN RAYS

RIKER'S ISLAND PENITENTIARY, NEW YORK CITY

SLOAN AND ROBERTSON, ARCHITECTS



Left: RIKER'S ISLAND CELL HOUSE (1933)

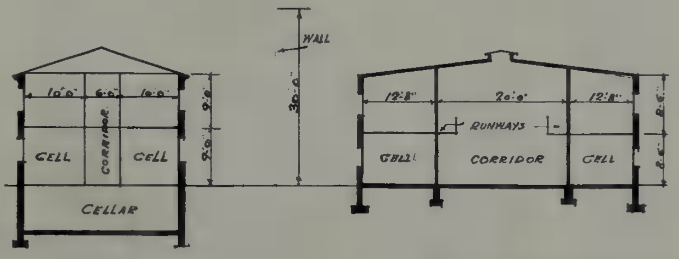
SLOAN AND ROBERTSON, ARCHITECTS

Modern cells of simplified design and construction

Right: COOK COUNTY JAIL (DETENTION JAIL AND PRISON COMBINED)

ERIC E. HALL, COUNTY ARCHITECT; HALL, LAWRENCE AND RADCLIFFE, INC., ARCHITECTS

Separate corridors for prisoners and for guards



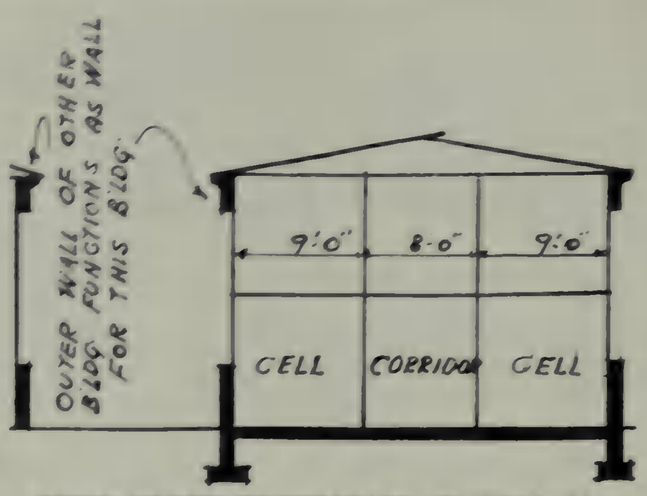
FARM COTTAGE OUTSIDE WALL CELL HOUSE INSIDE WALL

(Dependence on prison wall 30 feet high to prevent escape so that cells are brought to face of wall with advantages of sunlight)

NEW EASTERN STATE PENITENTIARY, GRATERFORD, PA.

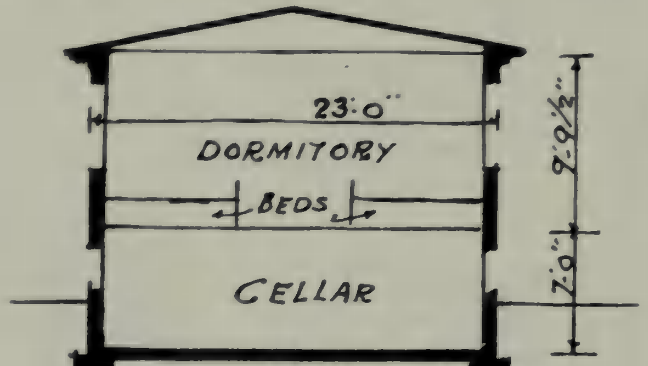
ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS

(See page 76 for plans)



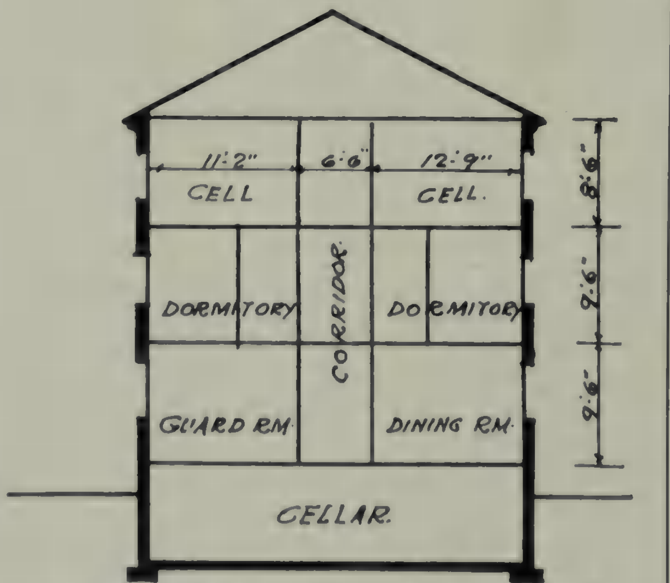
BERKS COUNTY PENITENTIARY, READING, PA.
ALFRED HOPKINS, ASSOCIATE ARCHITECT

Building arranged to care for prisoners requiring varying degrees of security. Exterior wings for honor prisoners working on farm; interior wings and exercise yards for prisoners requiring restraint. Buildings replace the [illegible] prison walls. (See plan on page 78)



MASSACHUSETTS STATE PRISON COLONY, NORFOLK, MASS.
MC LAUGHLIN AND BURR, ARCHITECTS

Combined dormitory and cell type cottage for prisoners in general *within* prison walls. Note provision for various types of prisoners. (See plan on page 79)



STATE PRISON FARM, LEESBURG, NEW JERSEY
Dormitories on the farm. No walls. (See plan on page 80)

fan systems are not used the heat gathers in the upper part of the cell house making the upper cells unbearably hot while the lower cells are cold.

2. *The outside cell system* brought to Pennsylvania from England by the Quakers is seldom found in other states although it has proved satisfactory in Pennsylvania.

Most wardens will tell you that this arrangement is out of the question—that a jail so planned is no longer escape-proof. But no jail is escape-proof. For escapes from the outside cell system the carelessness of the guards is more responsible than the cell design. (In all Europe there is not a jail or a penitentiary that does not have the cells on the outside walls. European criminologists fail to understand why the progressive American persists in planning his building on these antiquated lines, in view of the fact that the strength of light is in direct proportion to the square of distance. In other words, a cell 5 feet away from the window gets only 1–25 the light to be had through a direct window.)

Artificial ventilation becomes of secondary importance in a jail in which the cells are individual rooms with outside window, as an ordinary steam or hot water system of heating can then take the place of costly forced hot air systems.

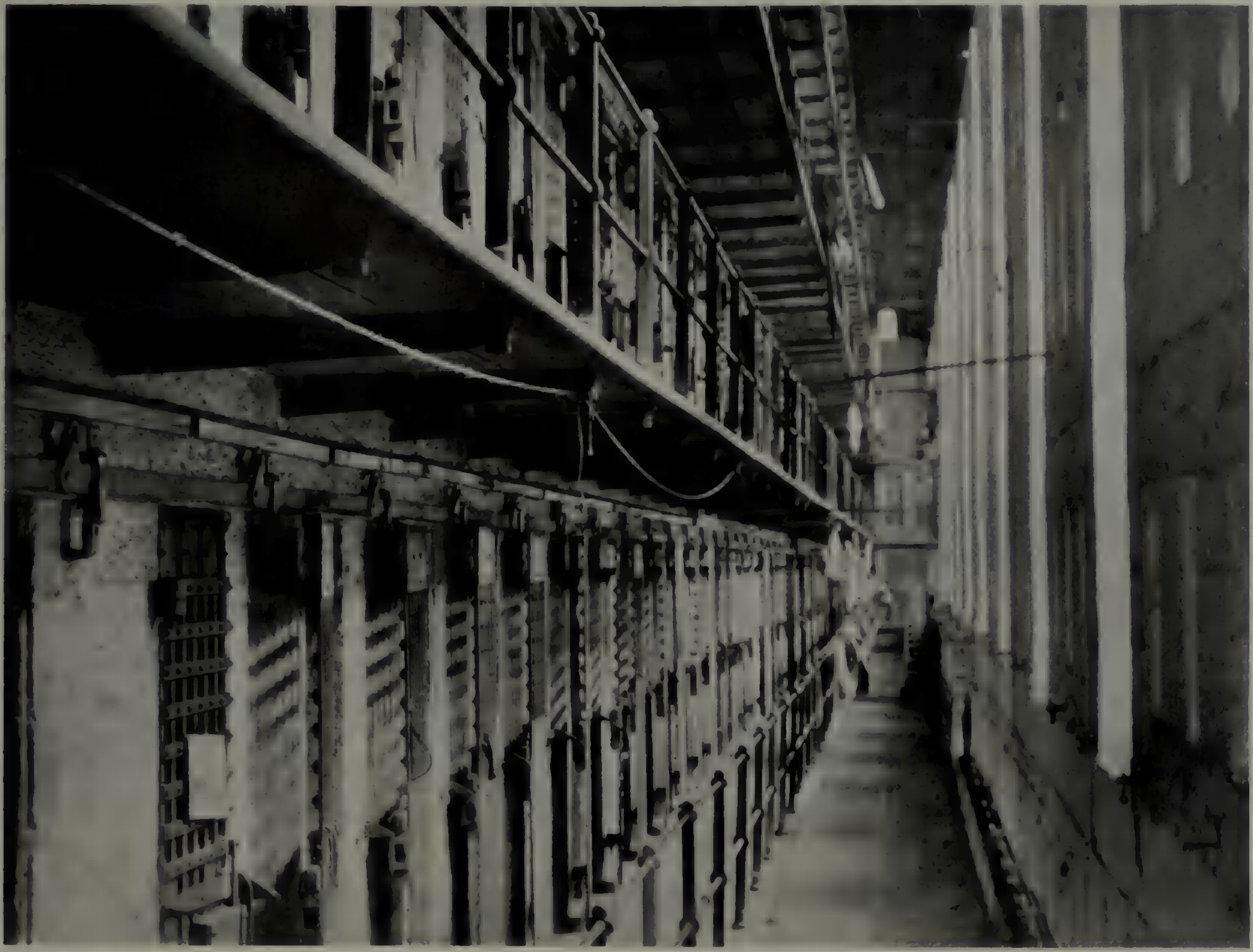
Because of improved light, ventilation and heating, better psychological effect on the men and lower cost, the outside cell is to be preferred over the interior cell block.

3. *A compromise* between these two systems is often seen in city and county jails. The prisoners, either in individual cells or bull pens, are kept 3 or 4 feet away from the outside windows by a wall of bars. This is advisable when there is no surrounding wall to prevent passing in of contraband, but is not necessary if the jail is in a tower surrounded by walls. In this type of construction, ventilation and heating are more easily controlled than in the central cell block. The inner barrier makes it more difficult for the prisoner to work on bars of the outer windows without being detected than if he were in an outside cell. The principal objection to this type is the reduction in direct sunlight, the impossibility of individual control of ventilation, reduced privacy and increased cost compared to outside cells.

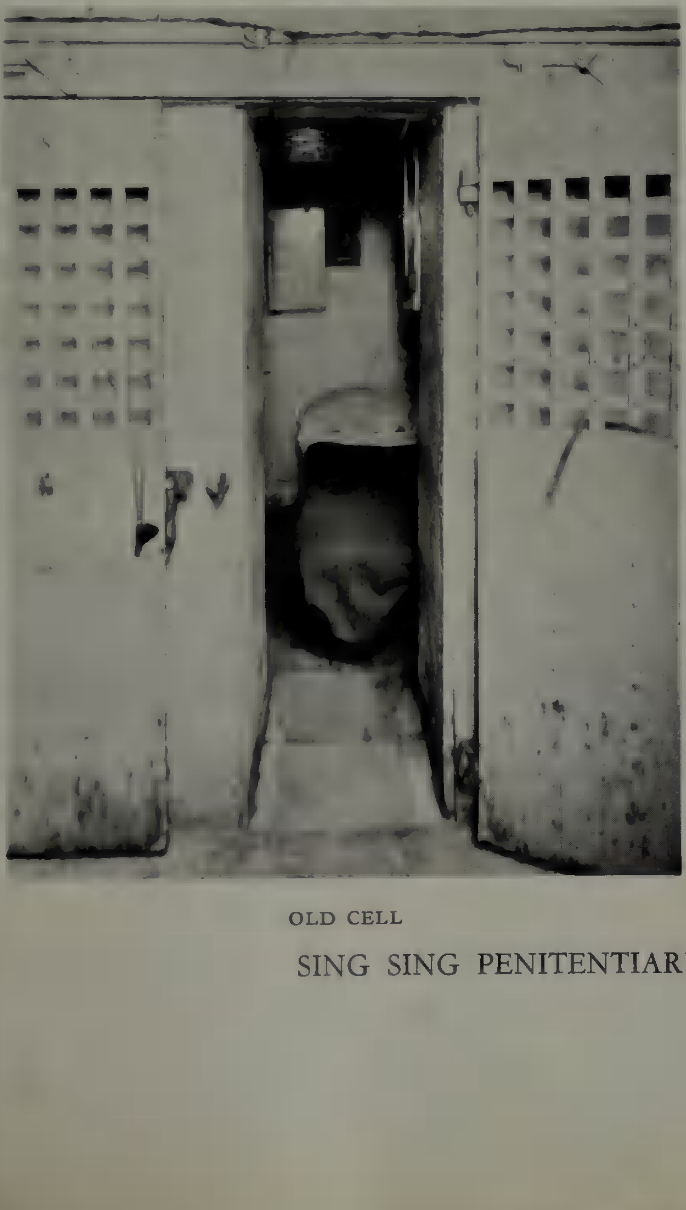
B. BUILDINGS GIVING LIMITED SECURITY

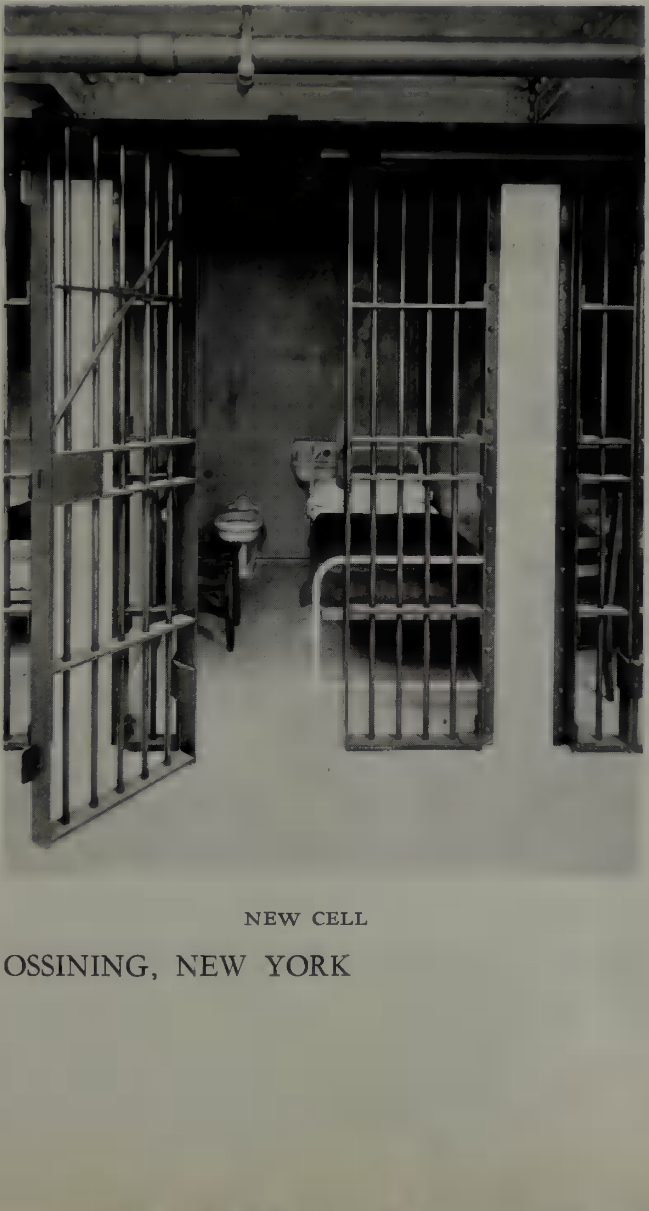
For those requiring only limited security it is the concensus of opinion that a building of ordinary standard construction within a properly constructed, lighted and guarded enclosure is sufficient precaution against escape. This building may be constructed without bars but should have doors and windows so constructed as to prevent exit without breaking them (Page 98).

This is a matter of policy which must be determined by the prison boards on the basis of their analysis of the prison population.



OLD CELL BLOCK (See diagram page 73)

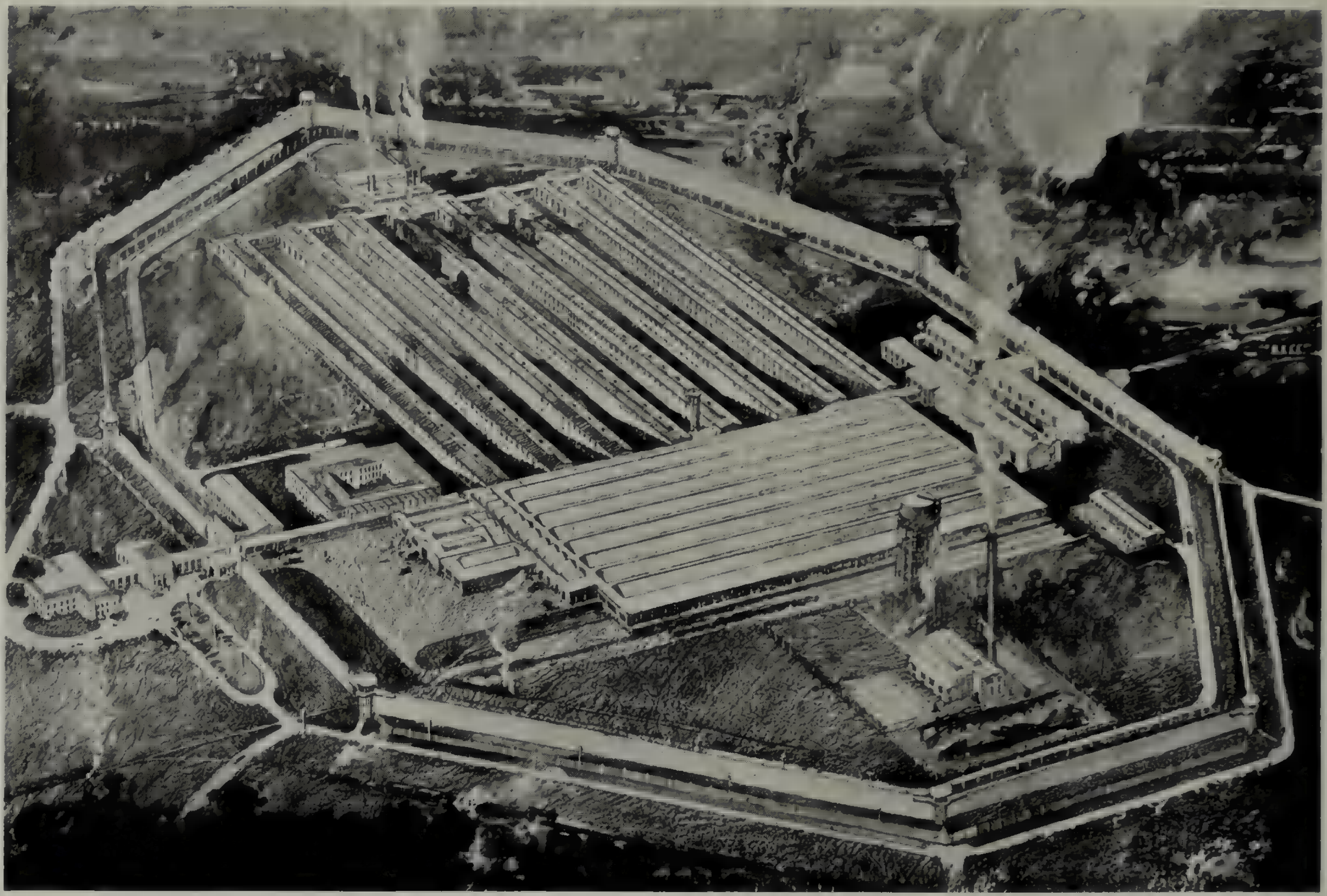


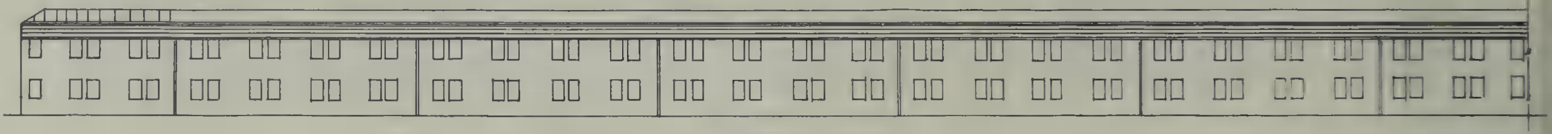


OLD CELL

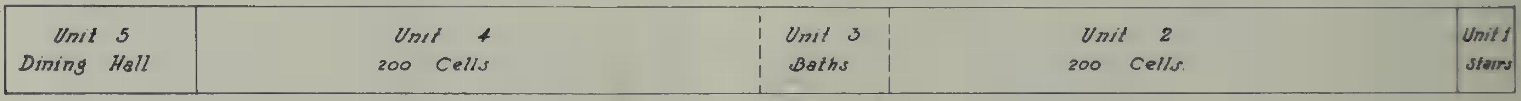
NEW CELL

SING SING PENITENTIARY, OSSINING, NEW YORK

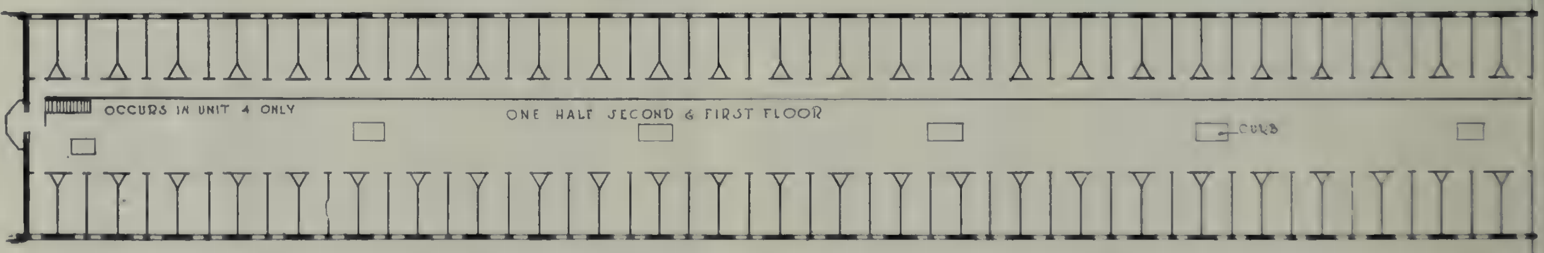




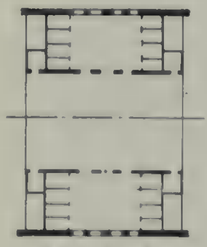
· TYPICAL · ELEVATION ·



Key Plan



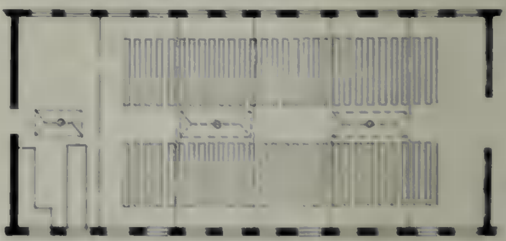
PLAN OF UNITS NOS 2 & 4



PLAN UNIT No 3

THE NEW EASTERN STATE PENITENTIARY, GRATERFORD, PA.

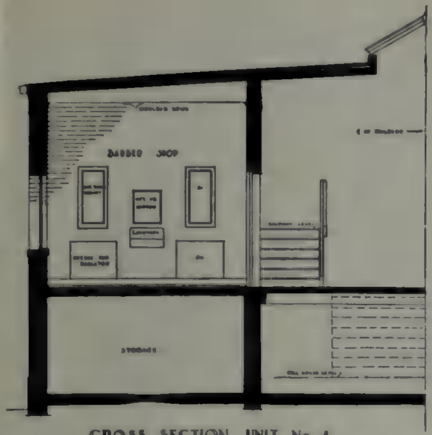
ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS



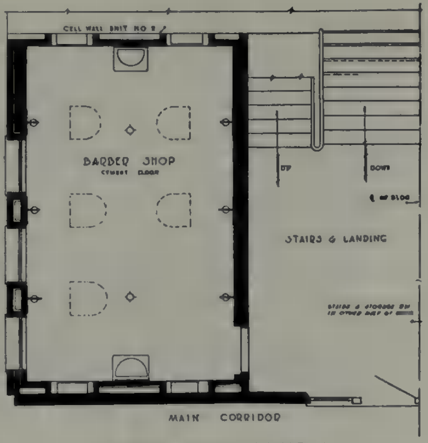
PLAN OF UNIT No 5

DETAILS OF CELL HOUSE NEW EASTERN STATE PENITENTIARY

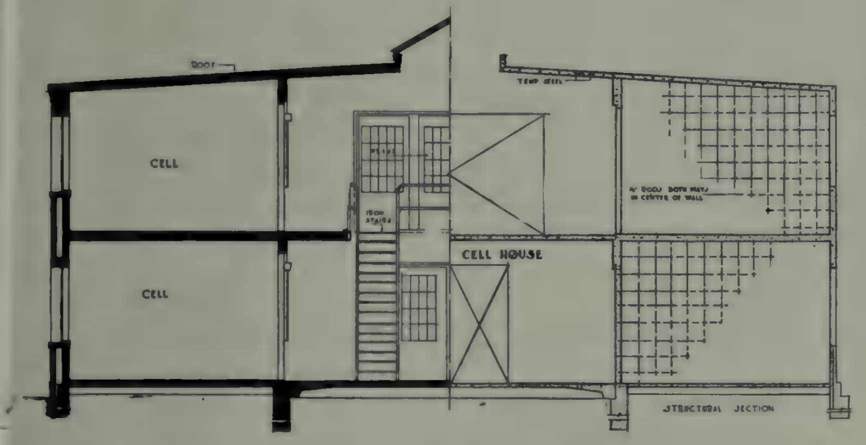
GRATERFORD PENN.



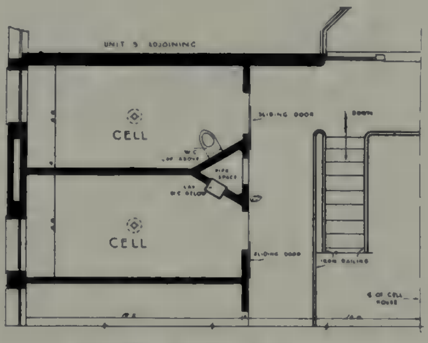
CROSS SECTION UNIT No. 1



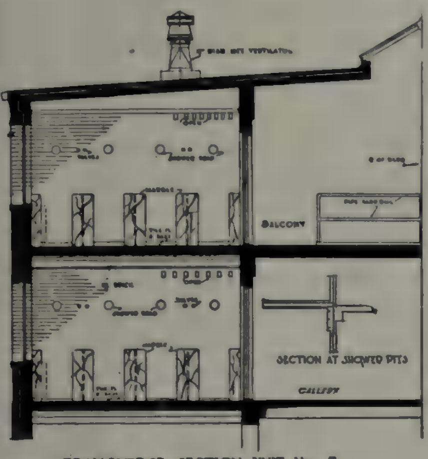
FLOOR PLAN UNIT NO. 1



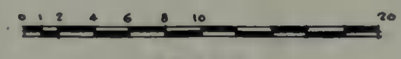
CROSS SECTION THRU UNIT NO. 4
UNIT NO. 2 SIMILAR



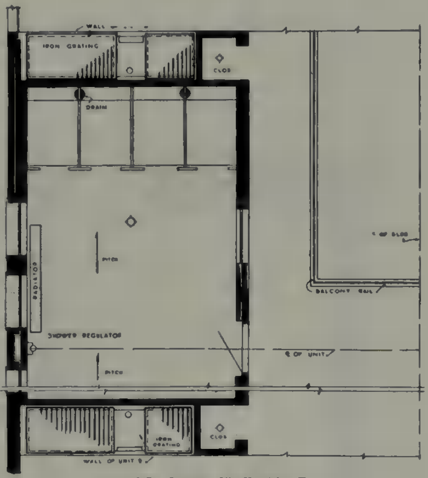
SECOND FLOOR PLAN
UNITS 2 & 8 SIMILAR



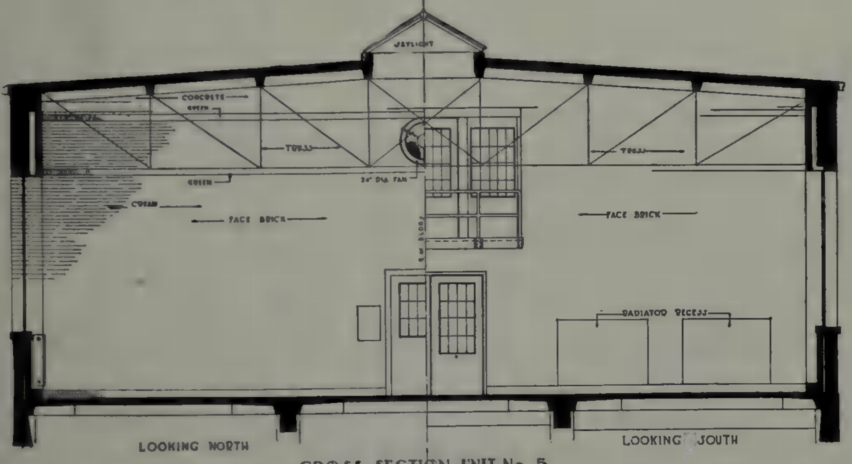
TRANSVERSE SECTION UNIT No. 3



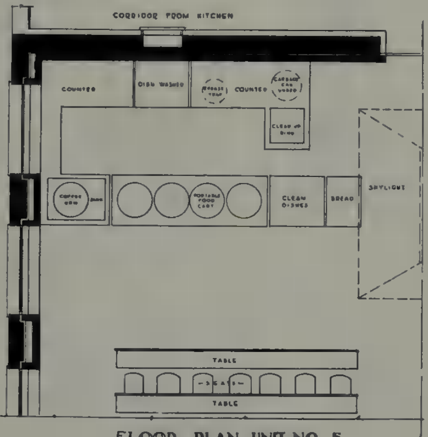
SCALE



FLOOR PLAN UNIT NO. 3



CROSS SECTION UNIT No. 5



FLOOR PLAN UNIT NO. 5
CAFETERIA IN DINING ROOM

ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS

BERKS COUNTY PENITENTIARY,
READING, PA.

ALFRED HOPKINS ASSOCIATES, ARCHITECTS

Buildings grouped so as to eliminate prison wall

Generally speaking, it is advisable regardless of the size or type, to provide for division of the building (either by isolation of floors or by party walls) into units of from 25 to 50 men. Shower baths and toilet facilities should be provided within this subdivision and some authorities also favor dining rooms within this smaller unit.

C. BUILDINGS FOR MINIMUM SECURITY GROUP

Prisoners not requiring security are generally housed on prison farms or in road camps because of the many advantages this arrangement offers over the older type of walled industrial prison.

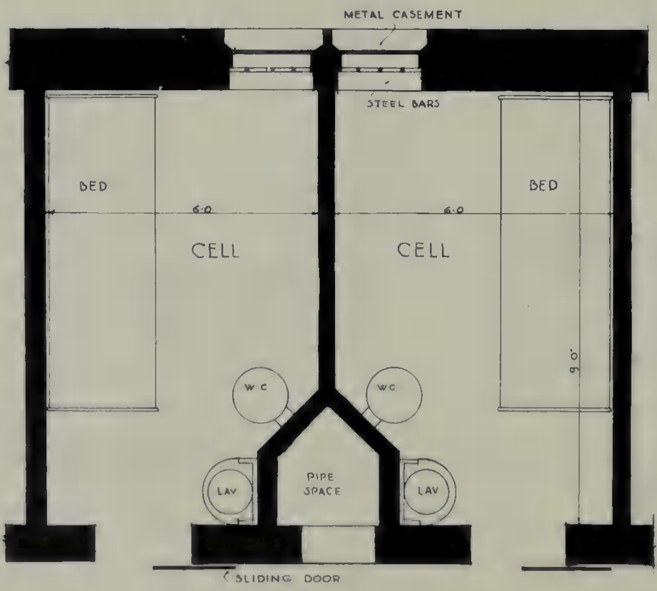
On a farm the health and mental outlook of the prisoners are better and the institution may become, to a considerable degree, *self-supporting*, the produce from the farm being used in hospitals and other state institutions.

Experience has shown that these farms do not require the old cell house or masonry wall. (This view is not concurred in by many prison wardens.)

There are two factors both of which tend to prevent his escape from these farms. In the first place, the probability of recapture and the penalty for escape is generally sufficient to deter any attempt, and secondly, the probability that privileges will be withdrawn from the balance of the prisoners if escapes take place causes the prisoners as a group to exert watchfulness and pressure on members who might otherwise wish to escape. The danger of escape apparently has no relation to the crime committed or the length of sentence. An analysis of the records on the Leesburg, N. J. Prison Farm (cottage system, no bars, wall or fence—see plan, page 80) shows that twenty per cent of its prisoners were convicted of murder or manslaughter. Escapes from this prison farm in 10 years have been less than one-half of 1%, and all but 4 men were recaptured.

The men in this non-security group are sometimes housed in existing farm houses or cottages, but if barracks are built for them it is essential that no bars be used as their presence would be an aggravation and incentive to escape.

The question whether single or ward sleeping rooms should be provided is discussed later.



TYPICAL CELL

36 CELLS PER FLOOR
8 FLOORS IN EACH CELL BLOCK

BERKS COUNTY PENITENTIARY,
READING, PA.

ALFRED HOPKINS ASSOCIATES, ARCHITECTS

D. NORMAL RATIO OF VARIOUS CLASSES OF SECURITY

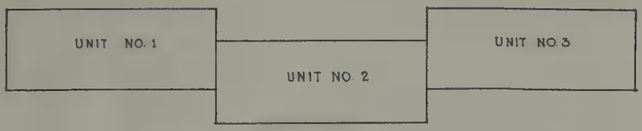
Generally speaking, one-third of the prisoners can be placed in buildings without any provision for security (other than a frequent check-up on the number of prisoners) while approximately two-thirds will require some degree of security. This group will need to be kept behind prison walls (or buildings so placed as to form a wall). Within this security group possibly one-half will require specially planned buildings to prevent escape. The balance within this group will require only limited precaution, aside from the prison wall, to prevent their escape. The ratio of these various classes will vary considerably in different localities. Generally speaking, a greater percentage of men will be in the non-security group in the northern and western states, while southern states where the colored population is high and eastern states with a large foreign population will have a smaller non-security group. This ratio of security groups will also vary greatly among various classes of prisons. As already shown by the analysis of prisoners in the Middlesex County Prison, approximately 75% of the prisoners fall within the non-security group. This ratio also seems to be true of the prison at Guelph, Ontario, Canada. At the Federal Reformatory at Chillicothe, Ohio, prisoners are housed in old army barracks, with practically no precaution against escape, aside from having men sleep on the second floor and making frequent check-ups on the number of prisoners. On the other hand, Federal prisons, aside from reformatories, may require maximum security for approximately 25% and some security for an additional 50%, while probably only 25% can be permitted on farms.

V. SIZE OF PRISON UNITS

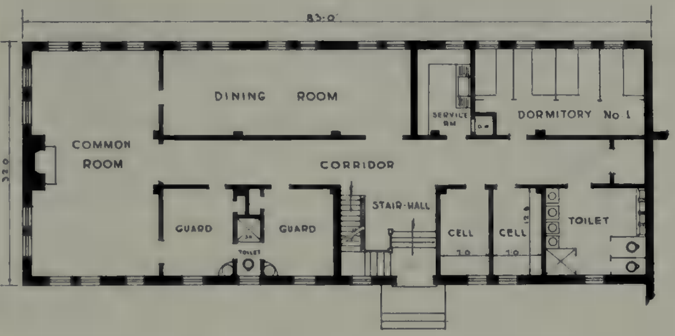
As previously stated, penologists strongly advocate provision for separate units of 25 to 50 men in order to permit proper classification and treatment of different classes of prisoners. This is desirable whether individual rooms or dormitories are used. Several of these units may be joined together to use as central dining hall and recreation rooms; or a central kitchen may be used but the food delivered to small dining rooms as at Norfolk, Massachusetts, where cottage dining rooms accommodate only 50 men.

There is a decided tendency in the handling of juvenile reformatories and reformatories for women to use the cottage system whereby 20 to 40 are housed and fed in a separate building with some attempt at obtaining a home atmosphere. This method can also be applied to the better class of men on prison farms.

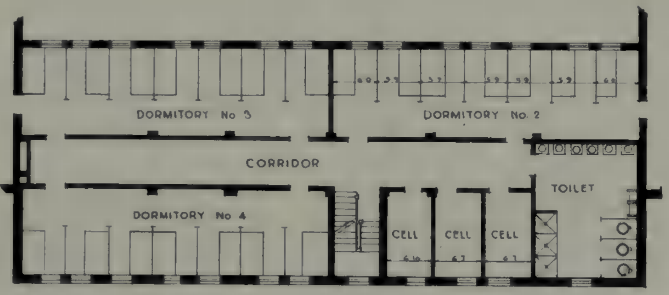
If a skyscraper prison were built, either on a farm or in a city, it would be simple and economical to arrange on each floor separate self-contained units of 25 to 50 men. The main cooking would be done in a central kitchen and distributed by elevator to each floor where the food would be served.



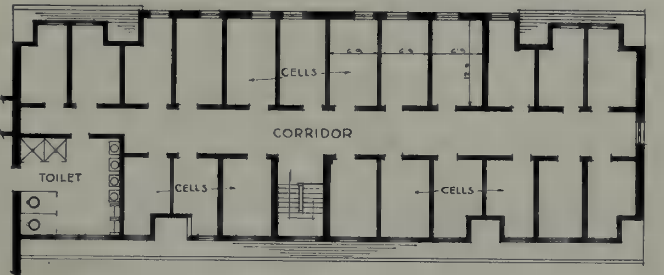
KEY PLAN
ALL UNITS ARE CONSTRUCTED THE SAME ON EACH FLOOR



FIRST FLOOR PLAN
UNIT NO. 1
SAME LAYOUT FOR UNITS NO. 2 & 3 ON FIRST FLOOR



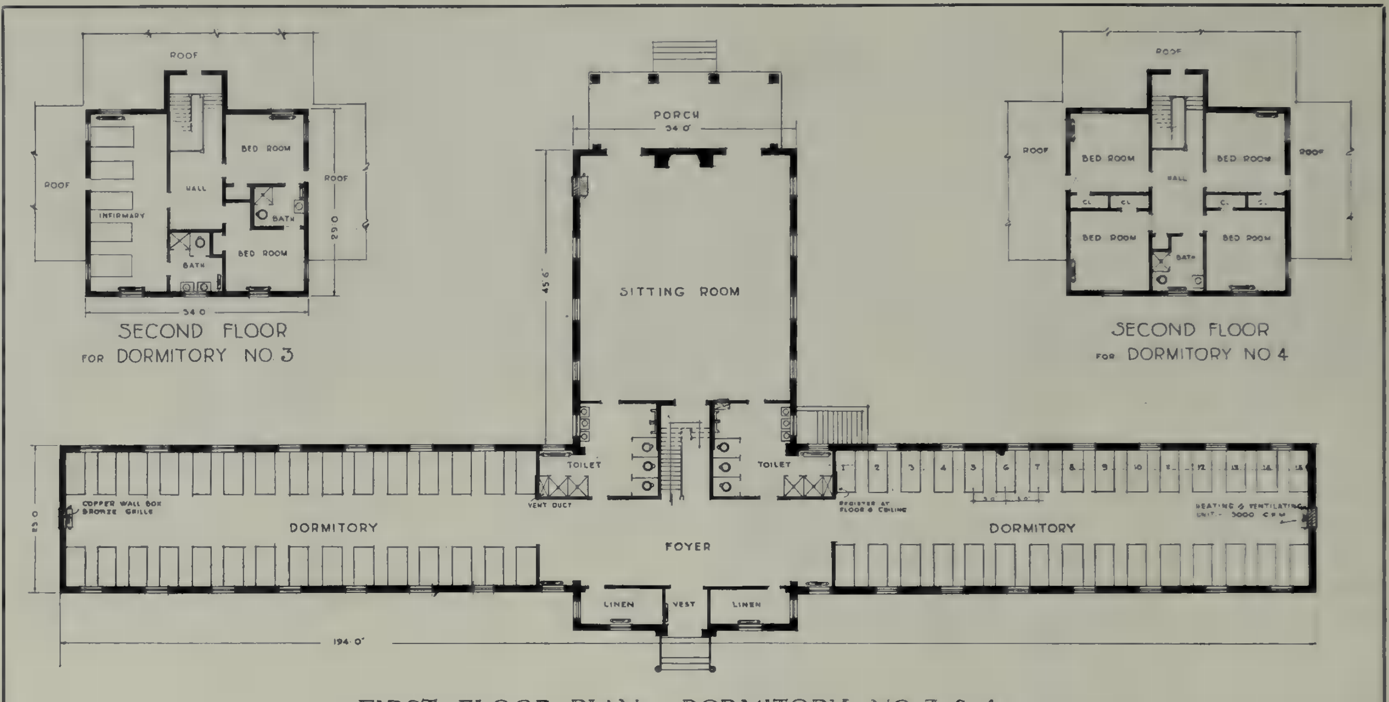
SECOND FLOOR PLAN
UNIT NO. 2



THIRD FLOOR PLAN
UNIT NO. 3

MASSACHUSETTS STATE PRISON COLONY, NORFOLK, MASSACHUSETTS

MC LAUGHLIN AND BURR, ARCHITECTS; RICHARD D. KIMBALL COMPANY, ENGINEERS

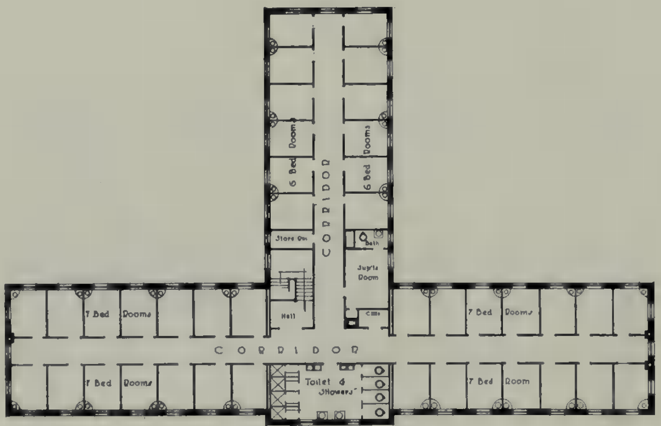

ROOF
BED ROOM
HALL
INFIRMARY
BATH
34'0"
29'0"
SECOND FLOOR FOR DORMITORY NO 3
PORCH
34'0"
SITTING ROOM
45'6"
TOILET
VENT DUCT
COPPER WALL BOX BRONZE GRILLE
DORMITORY
FOYER
LINEN
VEST
25'0"
194'0"
REGISTER AT FLOOR & CEILING
HEATING & VENTILATING UNIT - 3000 CFM
CL
SECOND FLOOR FOR DORMITORY NO 4

FIRST FLOOR PLAN ~ DORMITORY NO. 3 & 4

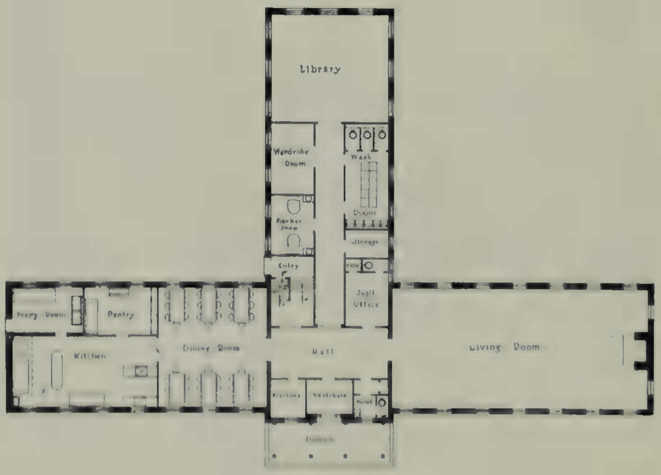
Above: DORMITORIES ON PRISON FARM AT LEESBURG, N. J.

DEPARTMENT OF INSTITUTIONS AND AGENCIES, DIVISION OF ARCHITECTURE AND CONSTRUCTION

Cost under $500 per prisoner for dormitory alone. Total cost, including land, kitchen, boiler house, cannery, and farm buildings, $1,000 per prisoner



SECOND FLOOR PLAN



FIRST FLOOR PLAN

COTTAGES OUTSIDE WALL

NEW EASTERN STATE PENITENTIARY, GRATERFORD, PA.

Zimmerman, Saxe and Zimmerman, Architects

VI. DORMITORY SLEEPING ROOMS

"Dormitory" in this article is used to denote "a sleeping room containing several beds" rather than in its other meaning of "a building for sleeping".

For more than a century the cellular system of prison construction, with a separate cell for each prisoner, has prevailed in American prisons. But during the past twenty years there gradually has come into use the dormitory system. At first dormitories were employed only for short term prisoners convicted of misdemeanors; but recently they have begun to be used in state prisons for long term prisoners.

A. REASON FOR ADOPTION OF DORMITORY

The principal reason for the adoption of this type of plan has been the increased cost of constructing the old type of cell house. Before the Great War substantial fireproof prisons could be built for sums ranging from $1,200 to $2,000 per cell; but plans for the Detroit House of Correction were estimated to cost $3,000 per bed, the Ohio Penitentiary at least $5,000 per bed, and the cost of the cell house for 500 men at Rockview, Pennsylvania, was $1,882,000, or $3,760 per prisoner, as against an average cost per man for a cottage dormitory at Lorton, Va., of $440.

B. DORMITORIES ARE BEING USED to a limited extent by the New York State Prison at Sing Sing, the Indiana State Prison at Michigan City, the Michigan

State Prison at Jackson, the Illinois State Penitentiary at Joliet, Massachusetts State Prison Colony at Norfolk and Prison Farm at Leesburg, New Jersey, District of Columbia and by the most of the Southern state prisons.

C. CELL OR SINGLE ROOM VS. DORMITORY. (In this discussion it may be well to bear in mind that a dormitory may be preferable to an inside cell but not to an outside room.)

The advantages of dormitories are: (1) they cost less to build, (2) they have better ventilation than inside cells, (3) some prisoners prefer to be together. On the other hand: (1) some prisoners prefer to live in separate rooms, (2) dormitories give rise to continual contacts which may be bad, (3) they are less secure than individual cells or rooms. With regard to possible homosexual practices there is not much difference between the two. Prevention is largely a matter of classification, segregation, and proper guarding in either case.

While an institution with only separate outside cells or rooms may be considered satisfactory, it is extremely doubtful whether one which has only dormitories will be found adequate. In case it is not, the choice for a proposed institution will be between the separate cell (or room) and the combination of room and dormitory plans. If the combination is decided upon, the ratio of separate rooms to dormitories should be indicated by the analysis of prison population prepared by the prison board and should be based on the psychiatric analysis of the prisoners and their assignment to minimum or limited security groups and the man's own desire for privacy. The experience of other institutions cannot be taken as final because there is a surprising variation in the type of prisoners in different institutions. Prisoners at Chillicothe and Guelph resemble the class of men generally found at college while other institutions may be made up largely of illiterate immigrants of all races and nationalities.

The Westchester County Penitentiary, which has one of the best physical structures of any short-term institution in the country, has only outside separate rooms, and the authorities there are very well satisfied with the arrangement. The inmates take considerable pride in furnishing and keeping their rooms clean and orderly. The officials believe that this interest shown by the inmates helps create a wholesome morale which may be of influence even after their leaving.

At Guelph, Ontario, Canada, where there is a particularly high class of young prisoners, dormitories are provided for 80% and cells for 20%. At Massachusetts State Farm both kinds of housing facilities are used and the authorities believe that the combination in ratio of 50–50 is satisfactory. At the federal reformatory at Chillicothe the prisoners are now housed in old army cantonment dormitory type

APPROXIMATE COST ESTIMATES FOR A STATE PRISON, CAPACITY 2,000 INMATES

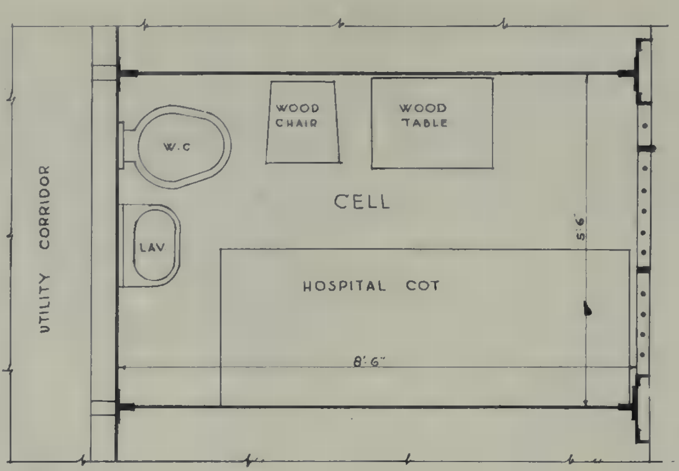
Note—Estimate exclusive of land, grading, excavation, railroad tracks, drains, walks, surface drains, ground lighting, service and waste lines and structures, water and sewer systems, fire lines, telephone lines, shop equipment and accessory equipment; but inclusive of utility equipment.

ITEM	Total Cubage	Rate	Estimated Cost
4 Cell blocks	3,478,000	57½c	$2,000,000
Industrial:			
8 Shop buildings	6,720,000	40c	$2,688,000
1 Lumber shed	236,000	25c	59,000
1 Dry kiln	49,000	35c	17,000
			$2,764,000
Utilities:			
1 Power house	....	Assumed	$500,000
1 General stores	254,000	40c	102,000
1 Bakery	113,000	40c	45,000
Bakery equipment	....	....	20,000
1 Maintenance shop	147,000	40c	59,000
Maintenance equipment	....	....	17,000
1 Salvage yard	120,000	25c	30,000
1 Incinerator	....	Assumed	12,000
1 Garage	102,000	40c	41,000
			$826,000
Accessories:			
1 Administration	250,000	60c	$150,000
1 Hospital, 64 beds	228,000	60c	137,000
1 Punishment, 26 cells	95,000	57½c	55,000
1 Bath house, laundry	202,500	50c	101,000
1 State shop	185,625	40c	74,000
1 Kitchen, dining unit	510,000	55c	281,000
1 Auditorium	560,000	50c	280,000
2 Greenhouses	136,500	25c	90,000
			$1,168,000
Miscellaneous:			
Wall	7,540 lin. ft. @ $55		$425,000
Fence	1,425 lin. ft. @ $2.00		3,000
12 Watch towers	Assumed		25,000
			$453,000
Total	....		$7,211,000

The Crime Commission of New York State.
Report of the Sub-Commission on Penal Institutions, 1928.

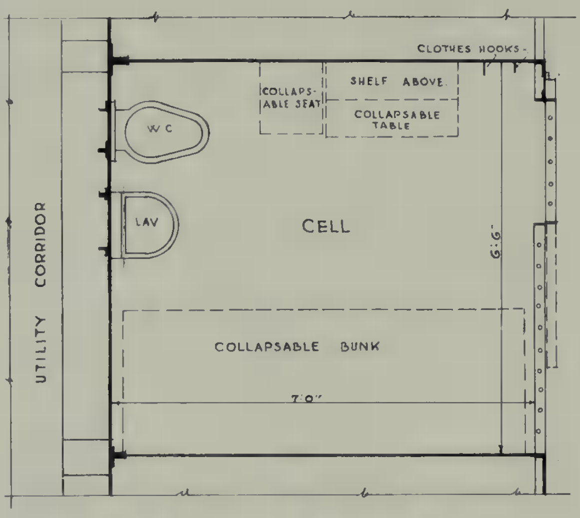
DORMITORY COSTS, LORTON, VA.

	Number of Beds	Total Cost	Cost per Prisoner
12 Standard Dormitories	600	$270,000	$450
2 Disciplinary Dormitories	120	45,000	375
2 Disciplinary Cell Houses	144	141,000	980
Totals	864	$456,000	$527



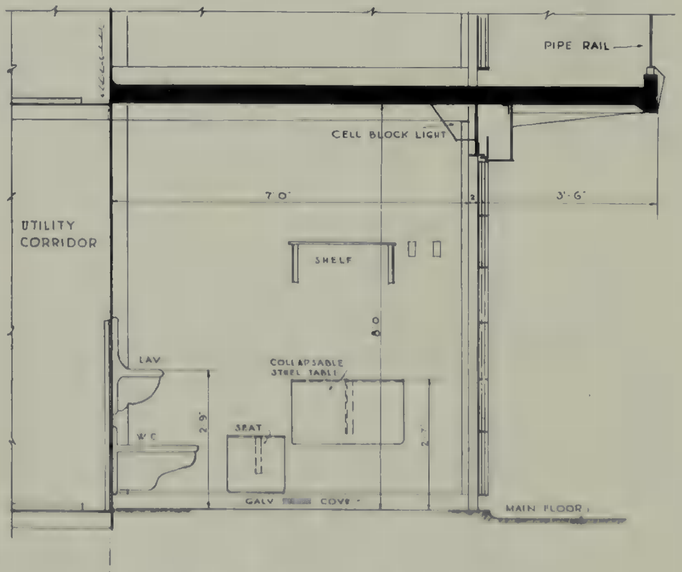
SING SING

TYPICAL CELL NEW BUILDING
46.75 SQ FT AREA
SPACE FOR EACH INMATE 924 CU.FT (NET)



RIKER'S ISLAND PENITENTIARY

45.50 SQ. FT. AREA
SPACE FOR EACH INMATE 1023 CU. FT (NET)



· CROSS · SECTION · OF · CELL ·
SING SING AND RIKER'S ISLAND CELLS
Showing Improved Arrangement Without Increasing Floor Area

barracks, but the new prison, aside from the punishment and admittance prison which will be of cell-block construction, will have an even division between individual rooms and dormitories.

D. DORMITORIES NEED DAY ROOM SPACE AND LOCKERS

In the past, failures of dormitory systems have often been due to the fact that no provisions were ever made for what is technically known as "day-room space," which is as necessary in prisons as in hospitals for the insane, or in charitable institutions. Plans should allow fifty square feet of sleeping space in the dormitory and fifty square feet of space in the day-room.

Individual lockers should be provided for every prisoner. This not only greatly improves the appearance of the room but lessens trouble from petty thievery.

E. SIZE OF DORMITORIES

"The study and practice of mob psychology has demonstrated that when a group of fifty men are continually together there arises an inner controlling group, numbering from seven to eight men, this number decreasing in irregular steps down to the one man who dominates a group of from ten to twelve. Using this fact as a basis for further experiments, it was decided that a mean between these two numbers (27) resulted in the most satisfactory group arrangements."*

"Although the dormitories in the various institutions over the country vary in size from a capacity of four to two hundred persons, the most logical size for an institution which contemplated classification of its population would seem to be that with a capacity of about twenty-five. When the group is larger than this, administrative difficulties may arise in supervising the men."†

VII. DETENTION JAILS AND SHORT TERM PRISONS

As previously stated, prisons may be divided, from the standpoint of function, into two major divisions: detention prisons for those awaiting trial and prisons for those serving sentence. Since in the smaller towns and in many of our largest cities these two functions are generally mixed this dual use must be taken into consideration in planning a jail, but the emphasis should be placed on the problem of short time detention for those awaiting trial.

A. DETENTION JAILS

These are for the detention of those awaiting trial, for witnesses, for the isolation of juries (juries can probably in most cases best be cared for at a public hotel). As a matter of convenience and economy, detention jails are also often used for prisoners serving short sentences. Sentences of over a week or two should (although this is not now a general practice) be put into county or state prisons or on prison farms. As this detention jail will house all types of criminals, considerable care must be taken to make a portion of the jail practically "break-proof." In addition, the building must be so designed as to resist mobs or jail deliveries.

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* Laying of Corner Stone of Sing Sing Classification Prison. Sing Sing Prison Press. Ossining, New York, 1920. Pages 15, 16.

† Report of Massachusetts Prison Board. Middlesex County Prison.

In undertaking a solution of this problem the architect should keep in mind that *only a limited number of those confined in a jail are proved guilty of the crime for which they were arrested. Witnesses, the innocent, and those not convicted of crime should not be subjected to greater hardships or humiliation than is absolutely necessary*, during the time they are detained. And of those who are guilty, many are held for very minor offenses, such as motor vehicle or prohibition violations.

Everyone recognizes that most of our jails and prisons are schools of crime. The destructive effect of these institutions is chiefly due to the fact that prisoners are placed two in a cell, or are herded together in "tanks" or "bull pens" which hold from three to twenty prisoners of all classes, the mere boy up for motor vehicle violation being in contact with hardened offenders.

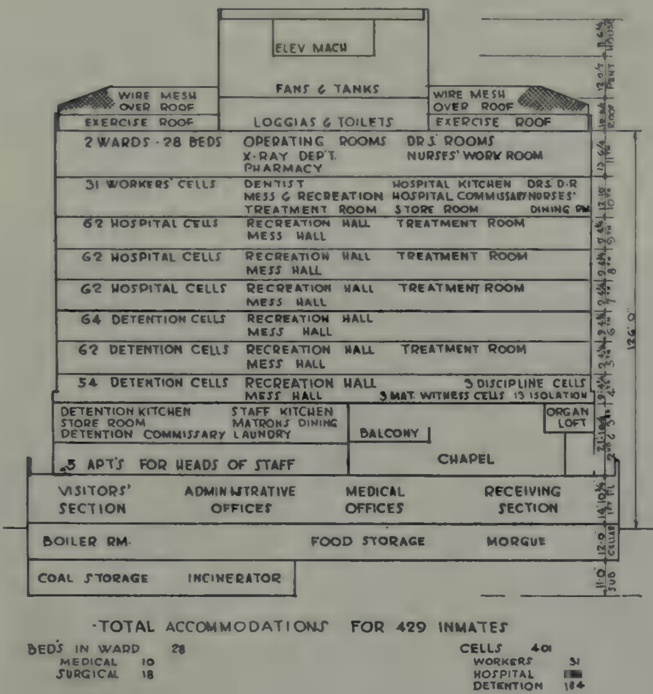
This evil can be prevented entirely by building police station lockups and jails in such a way that every prisoner shall be kept in his own cell or room and shall not have any association with other prisoners. Every cell should be about 6 feet wide, 8 feet long and 8 to 10 feet high. The cells or rooms should have outside windows designed to admit a maximum of light and air. No bars will be necessary if the "detention sash" type of window is used (Page 98). Cells for those suspected of predatory crime should be on upper floors or separated from the window by a corridor space of three or four feet (unless the jail is surrounded by a high wall or is in a tower) to prevent passing of contraband to prisoners and to prevent a prisoner's sawing the window bars.

Every cell or room should be supplied with toilet and a washbasin. The beds should be so constructed as to permit the easy extinction of vermin. The cells or rooms should be built in rows of 10 to 20, with as many successive floors as may be necessary, but every floor should be entirely separate and distinct. The walls and foundations should be of sufficient strength to permit additional floors later as needed.

A jail should have an outdoor exercise yard or some courts so arranged as to be serviceable during all weather conditions, and so planned as to make classification possible during recreation hours.

Small Town Hall: In small towns the prison may be located in a tower connected with the village hall, police station, fire station or other public buildings.

GENERAL VIEW



ANALYSIS

HOUSE OF DETENTION FOR WOMEN, NEW YORK CITY

BENJAMIN W. LEVITAN, ARCHITECT; SLOAN AND ROBERTSON, ASSOCIATES

ADMINISTRATION BUILDING

COOK COUNTY JAIL, CHICAGO

ERIC E. HALL, COUNTY ARCHITECT, OF HALL, LAWRENCE AND RADCLIFFE, INC., ARCHITECTS

TYPICAL COURT ROOM

COOK COUNTY CRIMINAL COURT HOUSE, CHICAGO

ERIC E. HALL, ARCHITECT, OF HALL, LAWRENCE AND RADCLIFFE, INC.

A properly designed tower would not only be in a better position to withstand mob violence but would also provide safer keeping of prisoners at lower cost for the building than would a prison located on lower floors. In the small village this lockup might well be placed in conjunction with the hose tower of the fire station, a properly guarded elevator being provided.

This combination of functions in the one building will reduce construction and administration costs and have numerous advantages. Where a tower is used, it will be an easy matter to provide segregation of various classes of prisoners, the more desperate cases being kept on the upper floors while witnesses, juries, etc., can be kept on the lower floors. A tower would provide a pleasing architectural feature for the village.

The jail should have connected to it simple shop rooms in which plain work can be given to those serving a sentence, or those awaiting sentence who are inclined to activity.

In small towns where it is necessary for the jail to house men and women as well as juveniles, these groups should be entirely distinct and separate—so arranged for and so placed that they cannot possibly come within one another's eye-sight or ear-shot from the time of entering to the time of exit.

City or County Jails in a City: There is a decided tendency (as shown by the new buildings in Los Angeles, St. Louis, Memphis, New Orleans), to place the jail on the upper floor of the court house or city hall.

The new Cook County Criminal Court and Jail Building (Chicago, Ill.) was originally planned as a skyscraper jail and court building, but, "The program had to be entirely changed. A skyscraper jail and courts building could not be built for less than ten million dollars." (The Western Architect, September, 1929. Page 56.) Asked why the new design was cheaper to build than a skyscraper type of jail, the architects said, "We do not feel that the condition in Chicago could disprove your statement 'that the skyscraper type of jail construction is more economical than the system which we used'," but added that "conditions in Chicago were quite singular. Had the skyscraper project been carried forward in Chicago in the Loop, the County would have been confronted with immense land values."

Laying aside questions of relative site costs, since cheap land will not increase cost of building (assuming same physical conditions of site), there seem to be many reasons why the skyscraper type (15 to 22 stories) is generally preferable to the older type of jail building. In the first place, a moderately tall building costs less to build per square foot of net usable floor area than a fireproof building of 6 or 8 stories.

A cost estimate for office buildings by Mr. W. C. Clark of S. W. Straus & Company follows:

Cost per square foot of net usable floor area: 8 stories $9.66; 15 stories $10.50; 22 stories $9.59; 30 stories $10.11.

The cubic foot costs are:

8 stories $.504; 15 stories $.51; 22 stories $.535; 30 stories $.572 and 75 stories $.706.

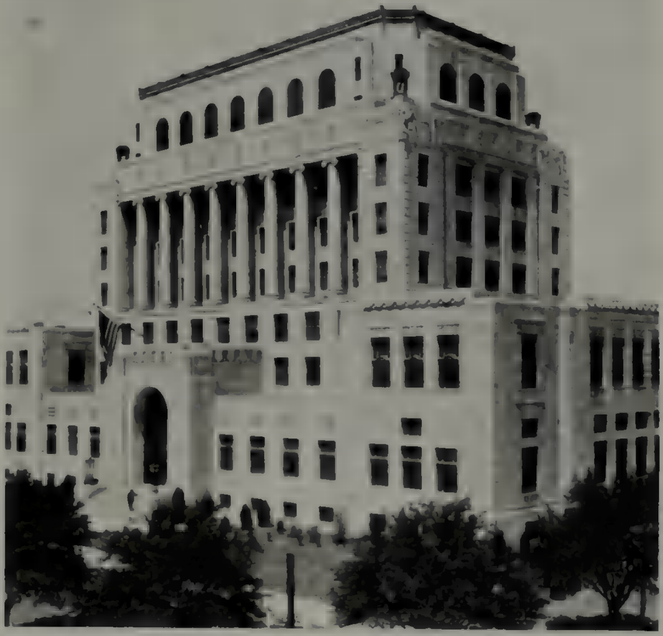
All figures are exclusive of land cost. In addition, the skyscraper type eliminates the need of costly tunnels required to connect buildings grouped as at Chicago and on prison farms.

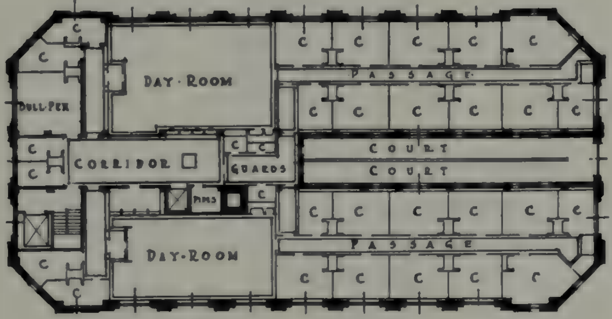
In the skyscraper type food can be delivered more efficiently and rapidly than by wagons through tunnels. The skyscraper also permits the use of outside cells or rooms with a minimum of bars without increasing the possibility of escape. This reduction in steel means a considerable saving in cost. The tower also permits a large degree of segregation of various classes of prisoners.

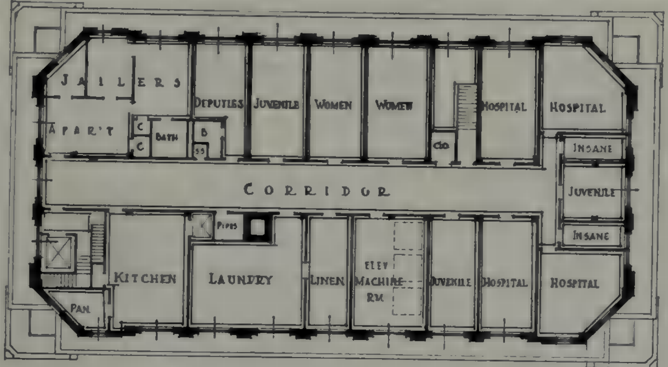
Assuming the same size of plot in either case it permits greater space for exercise or recreation. It also permits the elimination of the prison wall. (The exercise space can be enclosed by a wire fence if land is available.) If land is limited, the exercise yards can be provided on top of the court building and prison itself. The tower may be placed on top of the court house or within a court—similar to that of the Nebraska State Capitol.

This type would also be suitable for State prisons, the industrial buildings forming a wall around the tower.

(*Text continues on page 88*)

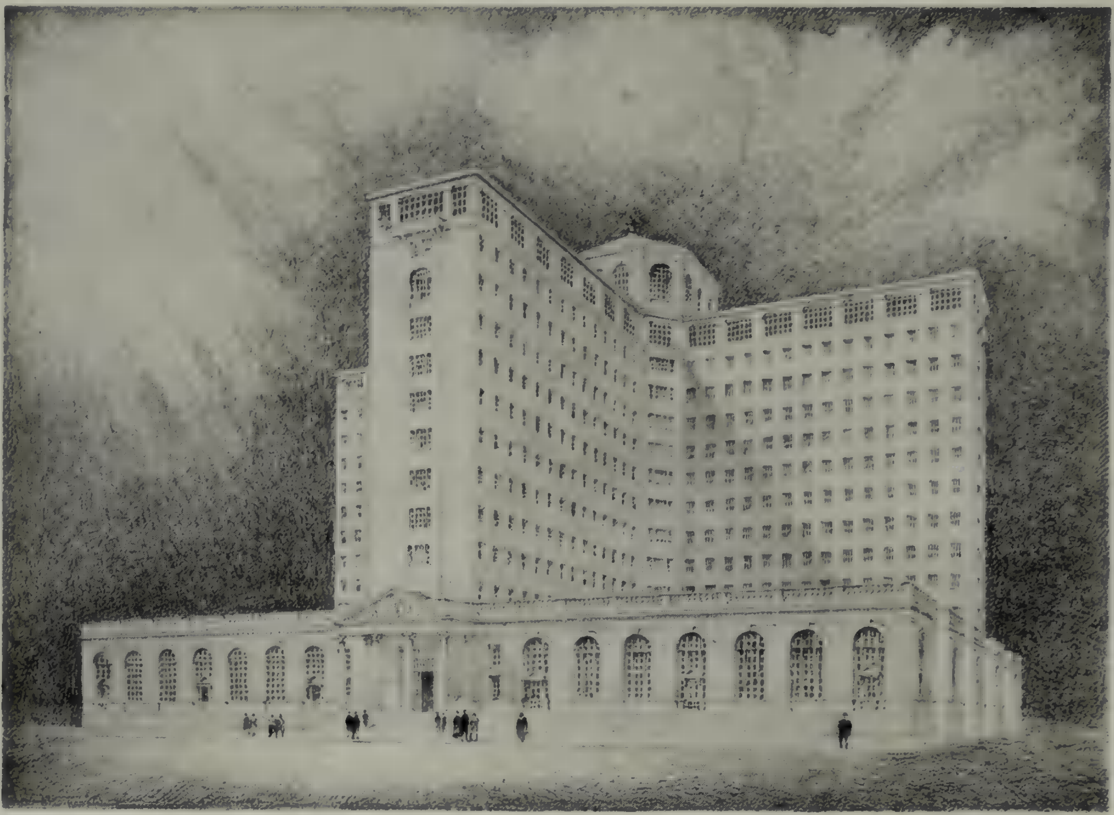






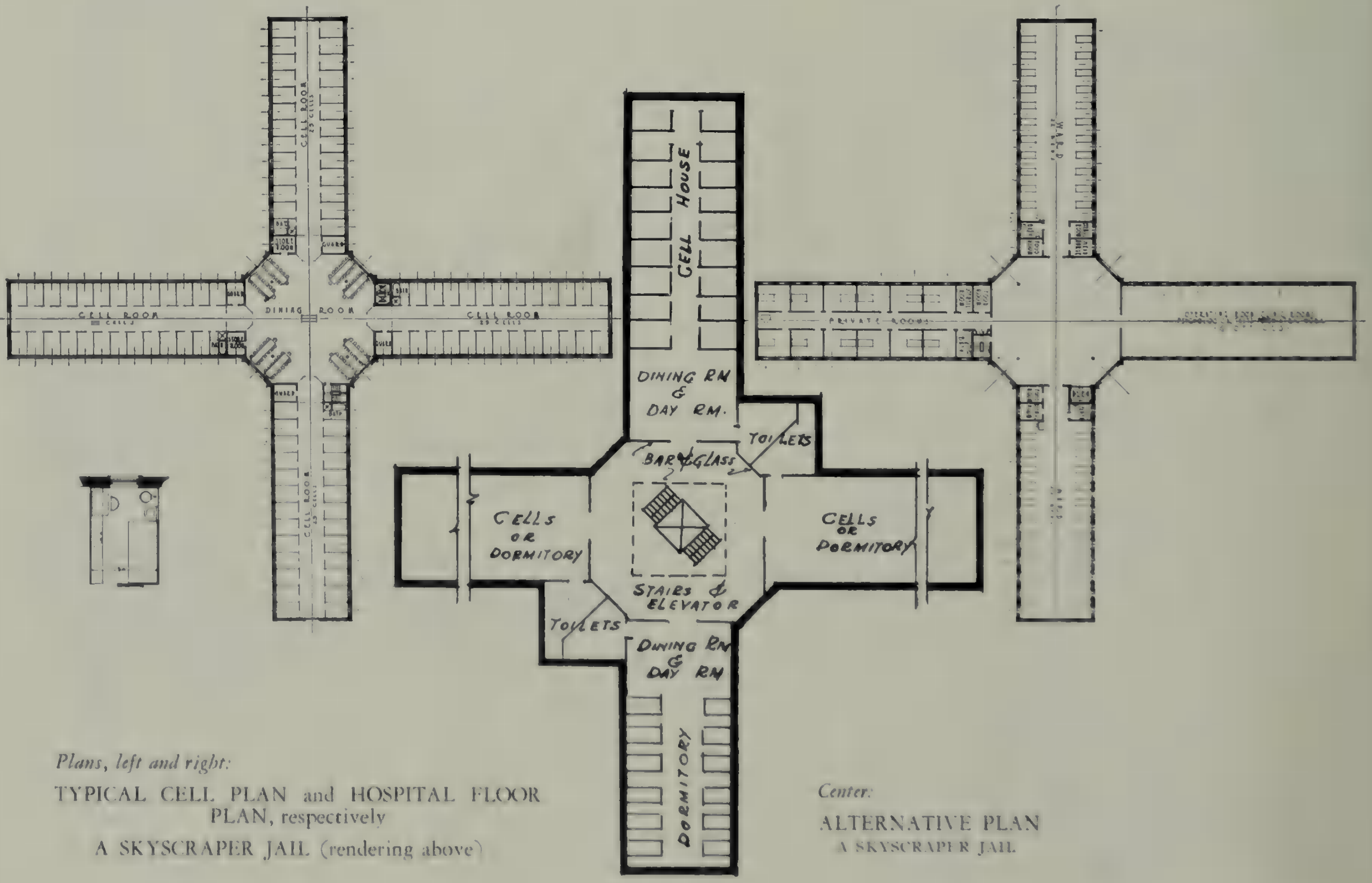
CADDO PARISH COURT HOUSE AND JAIL
NEW ORLEANS

EDWARD F. WEILD, ARCHITECT



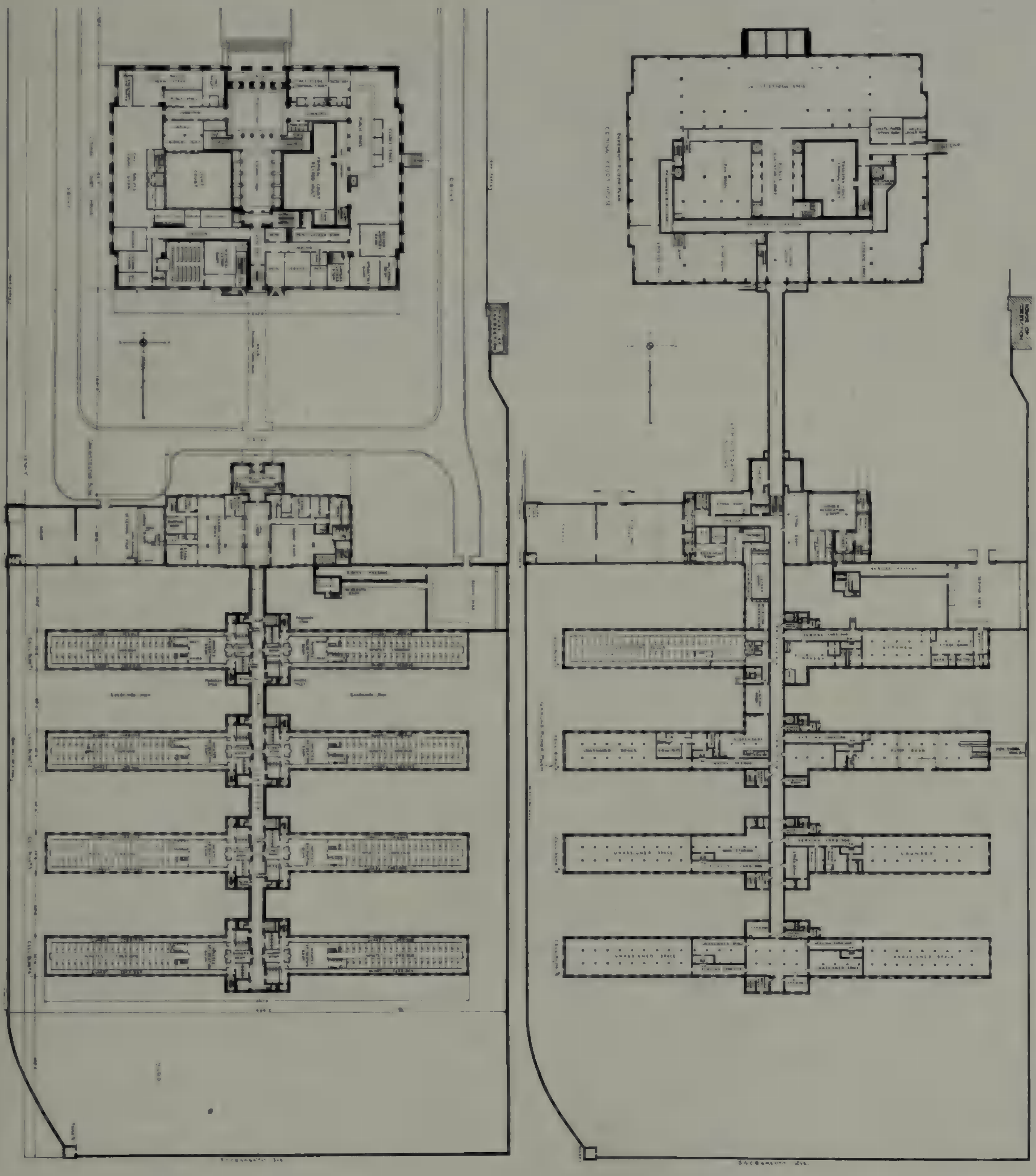
A SKYSCRAPER JAIL

Plan for a metropolitan jail conceived by Hastings H. Hart, president of the American Prison Association, designed by Francis Y. Joannes and Maxwell Hyde, Architects



Plans, left and right:
TYPICAL CELL PLAN and HOSPITAL FLOOR PLAN, respectively
A SKYSCRAPER JAIL (rendering above)

Center:
ALTERNATIVE PLAN
A SKYSCRAPER JAIL

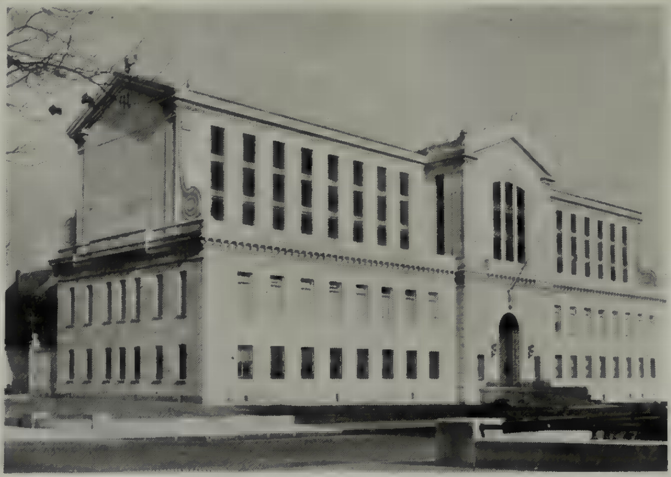


FIRST FLOOR

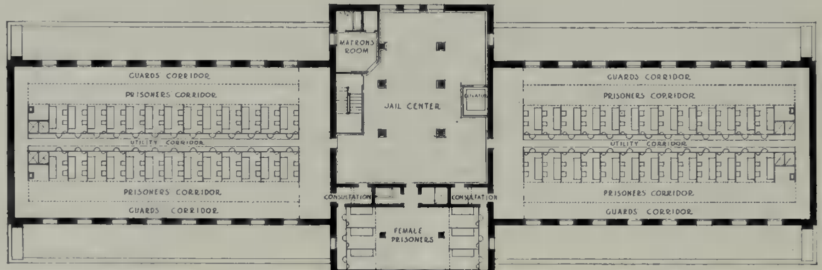
GROUND FLOOR

COOK COUNTY CRIMINAL COURT HOUSE AND JAIL GROUP, CHICAGO, ILLINOIS

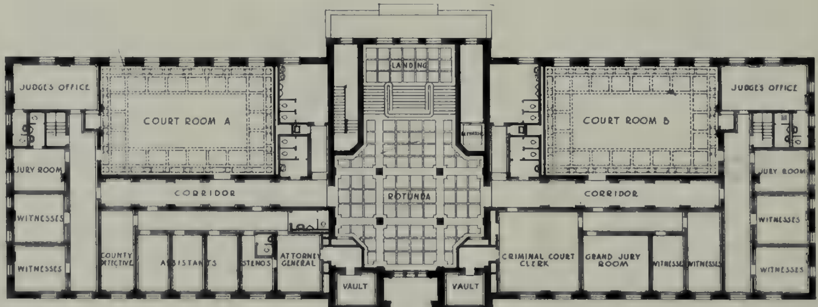
ERIC E. HALL, COUNTY ARCHITECT, OF HALL, LAWRENCE AND RADCLIFFE, INC., ARCHITECTS



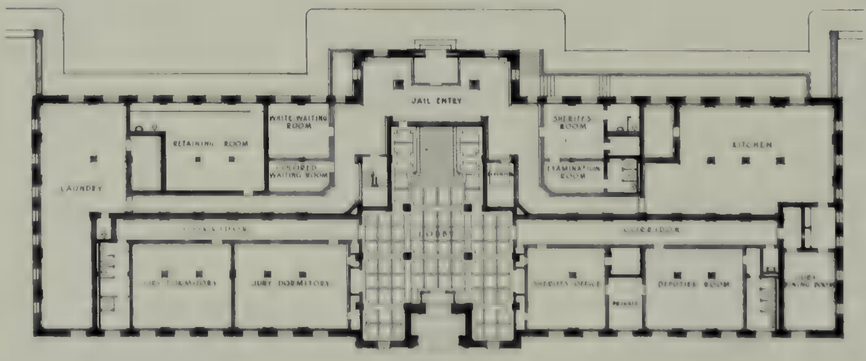
CRIMINAL COURTS BUILDING FOR SHELBY COUNTY, MEMPHIS, TENN.
JONES AND FURBRINGER, ARCHITECTS



JAIL FLOOR



MAIN FLOOR



GROUND FLOOR

CRIMINAL COURTS BUILDING FOR SHELBY COUNTY, MEMPHIS, TENN.
JONES AND FURBRINGER, ARCHITECTS

VIII. PENITENTIARIES OR LONG TERM JAILS FOR THOSE SERVING SENTENCE

(Includes Reformatories, Workhouses, Prison Farms, Etc.)

What makes the penitentiary different from the detention prison is the necessity for industrial buildings and the opportunity for a greater variety of types of housing facilities to be provided.

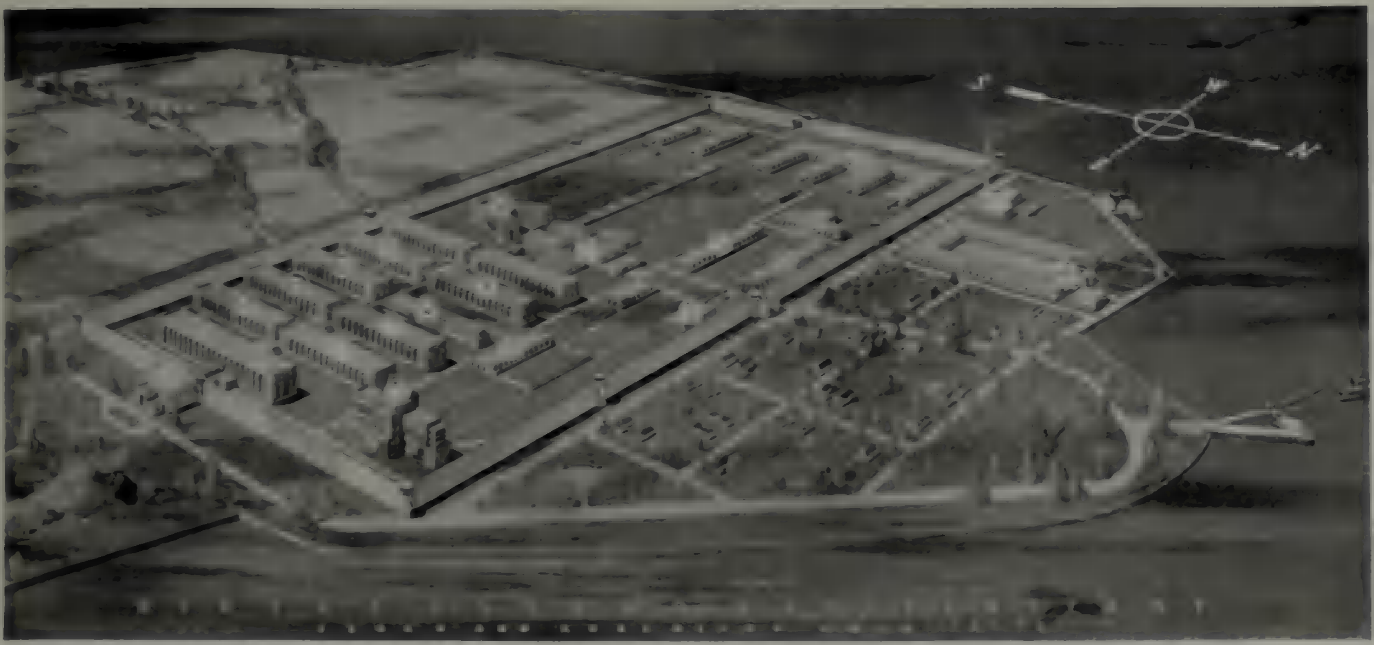
A. SIZE OF PRISON AND OF DIFFERENT SECURITY GROUPS

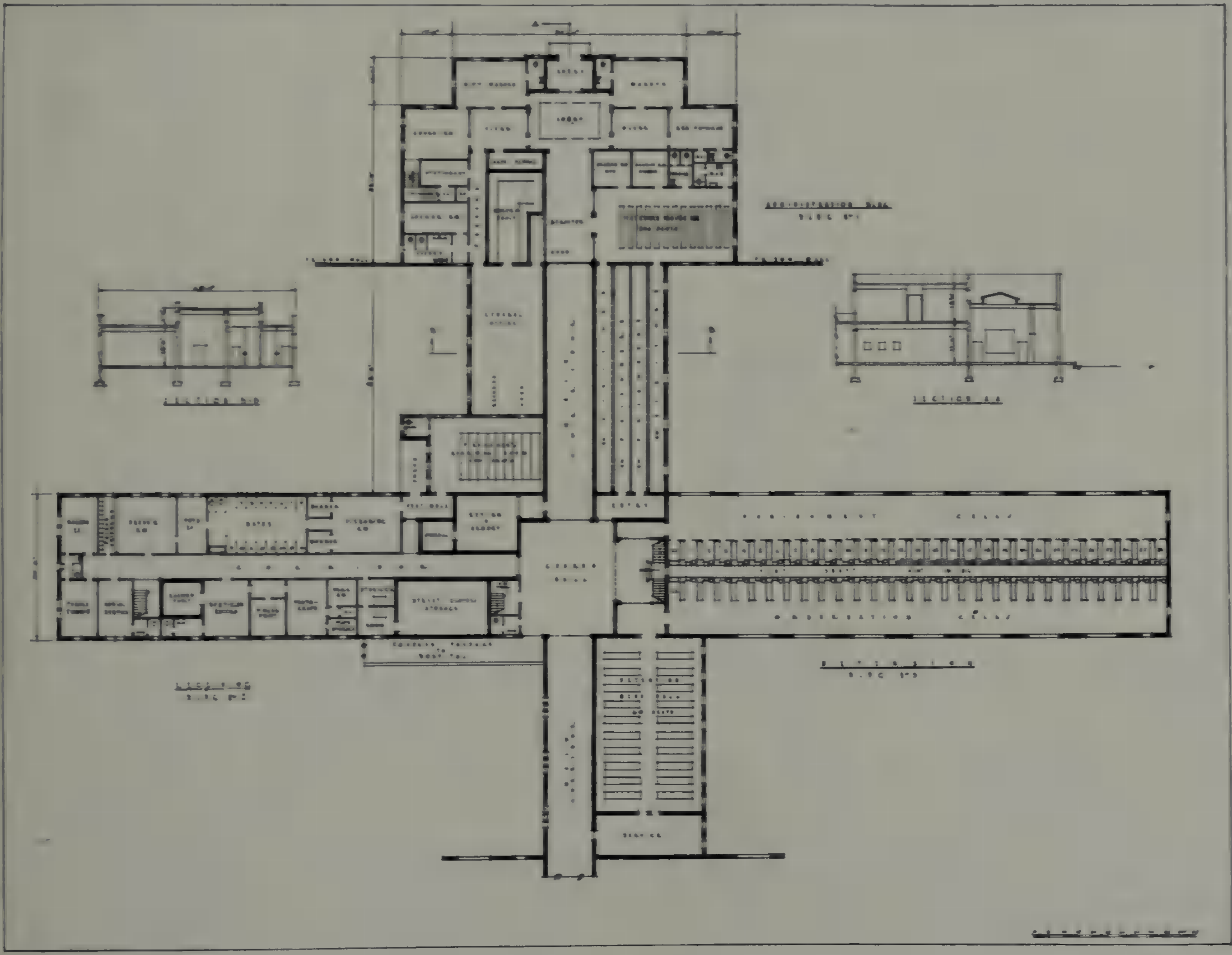
Some prison authorities, especially European penologists, feel that a prison population should be between 350 and 500 in order that the prisoners would receive more personal attention from the warden. Several of these units may be grouped together so as to take advantage of central utilities but if this is done a deputy warden should be placed in charge of each unit. It is highly desirable that every unit be completely segregated from other units and that every unit have the type of housing, industry, recreation and degree of security suited to its needs. Although larger prisons may have a lower per capita plant and wall cost, most prison executives advocate 1200 as the maximum desirable capacity. Where more than 1200 men are grouped in one institution it will be difficult to provide complete segregation for all the activities, and administrative and disciplinary problems will become more difficult.

1. Minimum Security Group. Under normal conditions an architect would plan to house approximately 300 of these 1200 prisoners in cottages or barracks outside of the prison walls. This group would be employed on the prison farm, which should have an area of at least one acre per man.

2. Maximum Security Group. For the group within the prison wall, the architect should provide a classification building with two classification cell houses, with a capacity of approximately 150 each, one cell house to be used for detention of incoming prisoners and the other cell house for detention of dangerous criminals, those undergoing punishment or otherwise requiring special attention. These cell buildings may be of the exterior cell type, although it may be desirable to have one building of the interior cell block type for punishment. If the admittance cell block is also of this type it will acquaint incoming men with what the prison used to be and with what the punishment cells will be like unless they behave themselves.

3. Limited Security. For the balance of





RIKER'S ISLAND PENITENTIARY, NEW YORK CITY

SLOAN AND ROBERTSON, ARCHITECTS

those within the prison wall, roughly 600 prisoners, dormitories and private cells or rooms should be provided as indicated in the discussion of Dormitory Rooms, Pages 80–82.

B. CLASSIFICATION PRISON OR PRISON BUILDINGS

If prisons are to be built with varying degrees of precaution against escape it is absolutely essential that there be a proper classification of prisoners on admittance to an institution.

Aside from the division of prisoners into groups according to liability of attempt to escape, it is important that there be a grouping according to the needs of various types of individuals.

Individualization in the treatment of offenders is the *fundamental principle* underlying *modern penology*. If we may use the hospital as an analogy, it is not sufficient merely to send a sick man to the hospital: his trouble must be *diagnosed* and he be sent to the proper ward for *specialized treatment*. Grouping of offenders into homogeneous classes is a necessary part of the machinery of individualization for which an architect must plan. Although there is not much dispute as to the validity of this principle of individualization and classification, there is no unanimity of opinion regarding the basis of classification. No rigid classification has yet been evolved by which inmates may be grouped while in the institution. Institutions which hope to do effective work must evolve their own classifications based upon a study of their respective populations.

For the carrying on of this examination and classification of prisoners it is essential that a Classification Prison be built, either as an individual institution or as part of a main prison. All prisoners, upon being committed to prison, should spend from 2 to 6 weeks in this classification prison before being sent to the prison or prison group where they are to start sentence. This prison will consist of administration building, wing or hospital building in addition to the admittance cell house and, when part of a large prison, a punishment cell house already spoken of.

1. Accommodations Required for Classification Administration Building. In planning a classification prison for a state averaging twelve to fifteen hundred commitments a year, it is desirable to provide accommodations for approximately the following staff: a superintendent or director of the prison, three psychiatrists, two to four psychologists and six field investigators (one office for the six will be sufficient as they will be in the field most of the time), two stenographers and two filing clerks. This is a desirable organization for classifying incoming prisoners, acting on the special cases after commitment, and making recommendations to the payroll board or governor on pardon applications.

If, however, it is intended to follow up cases after commitment and attempt treatment on a scientific, psychological and psychiatrical basis, this force should be increased by the addition of two psychiatrists, four psychologists, two additional stenographers and an additional filing clerk. In planning the administration building for this organization, individual rooms should be provided for each of the psychiatrists and psychologists, there should be a room for stenographers and a record room, library and conference room and a store room for supplies. In addition, there should be two lecture rooms or group test rooms which will accommodate between 20 and 30 prisoners, three or four laboratory rooms approximately 14 x 18, prisoners' waiting room with lavatory, also lavatory for officials.

In planning this building, attention should be given to acoustics, since the ordinary prison wall, either of glazed brick or of cement plaster with cement floor and ceiling, causes a great deal of reverberation. In the new classification prison at Sing Sing, which is supposed to be the "last word", the staff members report that they cannot use the conference room because of the reverberation of voices and noise from exposed water pipes. The glazed brick walls of laboratories and private offices make conversation difficult and very tiring on the staff. (For methods of overcoming this difficulty, see article on Acoustics, ARCHITECTURAL RECORD, March, 1929.)

2. Hospital Accommodations. As incoming men are subject to medical examination on admittance it is customary to locate the hospital in or adjoining the admittance building. No difficulty will be experienced from this arrangement if the classification prison is a separate institution, but if the classification building is but one unit of a larger institution, as at Sing Sing, there will be some difficulty due to the mingling of inmates answering daily sick call with new prisoners. The hospital facilities should therefore be separated from the classification unit by having these units in separate wings or having them on isolated separate floors as in the New Eastern Penitentiary. In the New Eastern plan attention is called to the provision of a small dumb waiter for transmittal of records to the department needing them.

Venereal Ward (Admittance Prison or County Jail)*

(a) Examining Room for New Patients: There should be a well equipped examining room in both female and male departments, where all new patients can have a first complete examination made. This room should have one or more surgical (iron white enamel) tables with adjustments for complete vaginal, urethral and bladder examinations. The room should be well lighted, and have special electric connections for instruments demanding artificial light. There should be a sterilizer at hand for immediate sterilization of instruments, and ample closet or cabinet room to provide for instruments and dressings needed for examination.

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* Minimum Standards for the Prevention and Treatment of Venereal Diseases in Correctional Institutions, by Emily Dunning Barringer, M.D. and Louis I. Chargin, M.D.; National Committee on Prisons and Prison Labor.

In this examining room there should be an ample supply of bacteriological slides, sterile swabs, test tubes, an incubator (if possible) and all sorts of laboratory and serological equipment, so that specimens for bacteriologic and serologic examinations can be taken at once under ideal conditions.

(b) Observation Ward, where every patient can receive individual isolation treatment.

An ideal arrangement is a glass partition between patients.

(c) Gonorrheal Wards:

1. Ward for active and sub-acute cases.
2. Ward for chronic cases. (Can be with chronic syphilis.)

(d) Syphilis Wards:

1. Ward for active cases. (This should be strictly isolated.)
2. Ward for chronic cases. (Can be with chronic gonorrhea.)

(e) Sanitary drinking fountains throughout the building, or sanitary drinking cups.

(f) Sanitary open front toilet seats throughout the building and sanitary urinals in the male department.

(g) Shower baths instead of tubs, especially in observation wards.

(h) Cable douche tables, or similar type, installed in treatment room of each ward for women.

(i) In male department there should be a well equipped treatment room, with proper surgical tables, for urethral, irrigation, instillation and treatments.

3. Admittance Cell Houses. It is highly desirable that the admittance cell house be closely joined to the administration building so that prisoners may be handled with a minimum of effort and so that the doctors and psychologists may keep the new men under close supervision. This building should be built for maximum security since all types will be kept in it until the department has had opportunity to study, classify and segregate them.

4. Observation and Punishment Cell Building. This building should be located close to or as part of the classification administration building, because prisoners sent up for punishment need special observation, regardless of whether their difficulty is physical or mental; some prisoners considered incorrigible have been cured. There is the classic case of an incorrigible prisoner who was reformed by the extraction of an ulcerated tooth, and a jail breaker who was handled by being made a trusty, and so enabled to go outside the cell walls.

C. INDUSTRIAL BUILDINGS

The problem of prison industries will vary so in different states that it is impossible to give more than a bare outline of underlying principles. It is well for the architect to find out from his prison board whether the prison industries are being selected with the primary purpose of punishment for the prisoner "sentenced to hard labor", of making money for the State, or of attempting to reform the prisoner by teaching him a useful trade. The purpose for which the industry is installed will have considerable influence on the design of this unit. If not intended for punishment, the buildings should be as cheerful as possible. If the prisoner is to be taught a trade, the architect may need to provide for a variety of industries with inclusion of class rooms for instruction.

In the selection of a prison industry it is important to bear in mind:

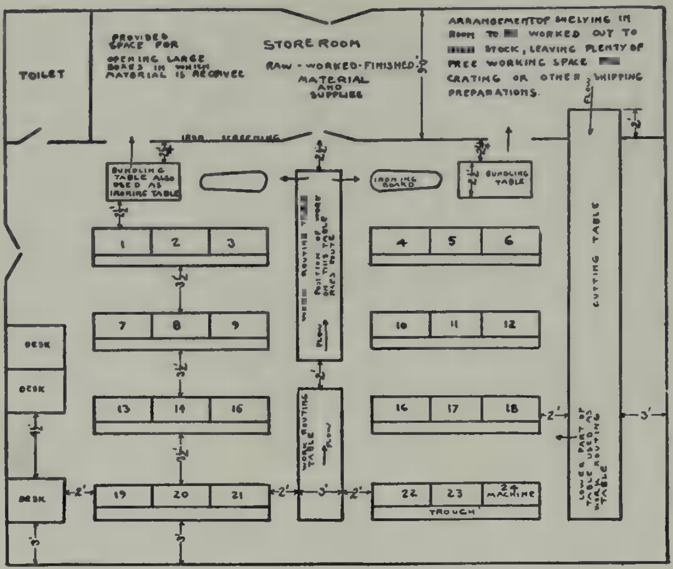
(1) The sale of prison-made goods is rapidly being restricted to use by institutions and departments of a state or its political subdivisions. This being the case, the market should be analyzed before plans are made for a particular prison industry.

(2) There should be an allocation of industries among the states. For example, one state manufactures shoes, another furniture, and so on, and each sells the surplus products, above those which it can use in its institutions, to some cooperating state. The practical working out of this plan is found in the sales of the surplus shoes manufactured in the Massachusetts State Prison to institutions in Rhode Island, and of furniture from the Virginia State Prison to institutions in Pennsylvania and New York. Therefore, before selecting a prison industry the prison board should familiarize itself with prison industries throughout the country. This information may be obtained from the National Committee on Prisons and Prison Labor, the researches of which extend over a long period of years and record the experience, the success and failures in the different states, as well as the requirements of the state use market.

(3) The industry must be suitable for the class of prisoners in question. For example, the selection for men's prisons of women's trades, or of work especially suitable for handicapped workers such as the blind, is a bad mistake.

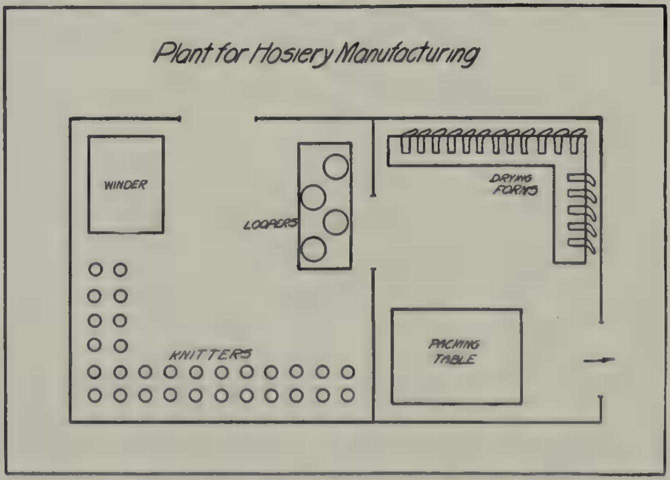
(4) The industry should be one in which the prisoners can obtain employment on release.

Unless the industry is one which requires the use of very heavy machinery it is generally advisable to build a modern type of loft building with columns so strong that future expansion can be taken care of by adding more stories. Due to the great variety of the industries it is possible to install, the best type of structure to build (unless a foundry or other special type is definitely called for) is a three or four story re-


TOILET
PROVIDED SPACE FOR OPENING LARGE BOXES IN WHICH MATERIAL IS RECEIVED
STORE ROOM
RAW - WORKED - FINISHED MATERIAL AND SUPPLIES
ARRANGEMENT OF SHELVING IN ROOM TO BE WORKED OUT TO STOCK, LEAVING PLENTY OF FREE WORKING SPACE CRATING OR OTHER SHIPPING PREPARATIONS.
IRON SCREENING
BUNDLING TABLE ALSO USED AS IRONING TABLE
IRONING BOARD
BUNDLING TABLE
CUTTING TABLE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
16
16
17
18
19
20
21
22
23
24 MACHINE
TROUGH
DESK
DESK
DESK
FLOW

PROPOSED ARRANGEMENT OF A SEWING PLANT

From *Industries for Correctional Institutions for Women*, National Committee on Prisons and Prison Labor



PROPOSED ARRANGEMENT OF A HOSIERY PLANT

From *Industries for Correctional Institutions for Women*, National Committee on Prisons and Prison Labor

inforced factory building approximately 64 feet wide, with 20 foot bays and 13 foot floor to floor height. Because of the possibility of future change in the type of industry housed, it is advisable to plan for a 200 pound floor load. Wherever specific industries have not been decided on it is well to provide 150 square feet of industrial space per inmate. It must be borne in mind that only about half the inmates will work in the industry and that more men will be used per machine than is customary in the ordinary industrial plant. Industrial buildings will be found more satisfactory if they permit a view over the prison wall.

Attention must be given to the provision of ample storage warehouse space for both raw and finished products and supplies for the prison. As the flow of goods will be less steady than in a commercial industry it will be advisable to provide 100% excess storage space.

The industrial buildings should be so placed that they can be completely shut off from the housing portion of the prison. This is a good precaution against petty thievery; it simplifies control in case of riots, and facilitates search in case a man is reported missing at a check-up.

There is some difference of opinion as to whether the classification that is carried on in sleeping and living quarters can or should be carried over into industry. However, the architect should so plan his buildings and site arrangement that this segregation may be carried over should it be desired in the future. The plan for the New Eastern Penitentiary provides for complete isolation of various groups not only in the cell houses, but at mess and at work. The plan of the industrial building as given does not show a division into units corresponding with the cell houses but it is the intention of the architects that this subdivision be obtained by erecting walls or wire fences between the various groups at work in the industrial building.

Attention is called to the site planning (page 76) by which the incoming and outgoing stores are separated from the main portion of the prison population. This is desirable as a means of preventing incoming truck drivers from delivering or dropping contraband to prisoners. This plan is very logical in the relation of the various units, the principal criticism being that the prison is about four times too large. (This is not a criticism of the architect since it is not his function to determine the size of a unit but only to solve the problem given him.)

D. EDUCATIONAL REQUIREMENTS

The extent to which provision must be made for educational facilities will depend wholly on the type of prison population and the attitude of the prison board. In reformatories—and it must be borne in mind that there is very little essential difference between the population in some reformatories and some prisons—school space is greater than that devoted to industry. In some prisons almost no space is devoted to instruction. With such a variation a thorough analysis of the prison population should be made with special attention to illiteracy to determine the requirements.

E. RELIGIOUS FACILITIES

A large portion of the prison population attends some type of religious services. As different creeds are represented it is desirable that provision be made for several services at the same time. Opinions as to the type of church building which should be built vary. The ideal arrangement is to have a chapel set apart for religious worship, and hold movies, amateur theatricals and concerts in a separate auditorium. Experience has proved, however, that though this is often called for in the plans, when the buildings are finally built the religious and secular services are generally combined. If the dual plan is adopted the chapel-auditorium at Sing Sing offers a good solution. The two rear wings may be shut off by folding doors and used as small chapels and the main auditorium used at the same time. In this plan it will be noted that the altar is placed at the rear of one of the wings. When this room is used for Catholic services the backs of the benches are reversed and the men face the altar. When it is used as an auditorium the seats face the main stage.

Information on chapel design may be obtained from the National Committee on Prisons and Prison Labor who are making a study of this problem in cooperation with various religious bodies.

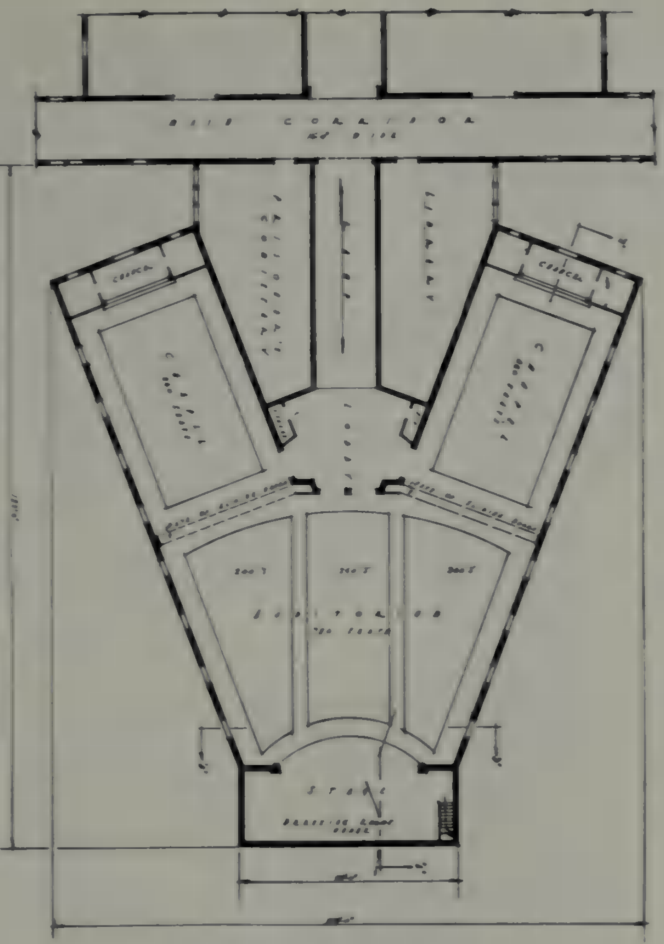
F. RECREATIONAL FACILITIES

Auditorium: Naturally, a moving picture projection booth will be provided. As talking movies are the accepted thing, it will be desirable in planning this auditorium to consider the proper arrangement for acoustics. With the hard cement or glazed walls generally found in prisons, the room will be most unsatisfactory from an acoustical standpoint unless some special measures are taken to overcome this difficulty. Cinder block walls left exposed will provide some of the necessary sound absorption, but proper acoustics will be obtained only by proper relation of the various dimensions of the room.

Athletics: The prisoners' morale must be developed by means of play. This can be done by means of athletic competitions of baseball, soccer, swimming, and all the activities that have proved successful in the Army and Navy.

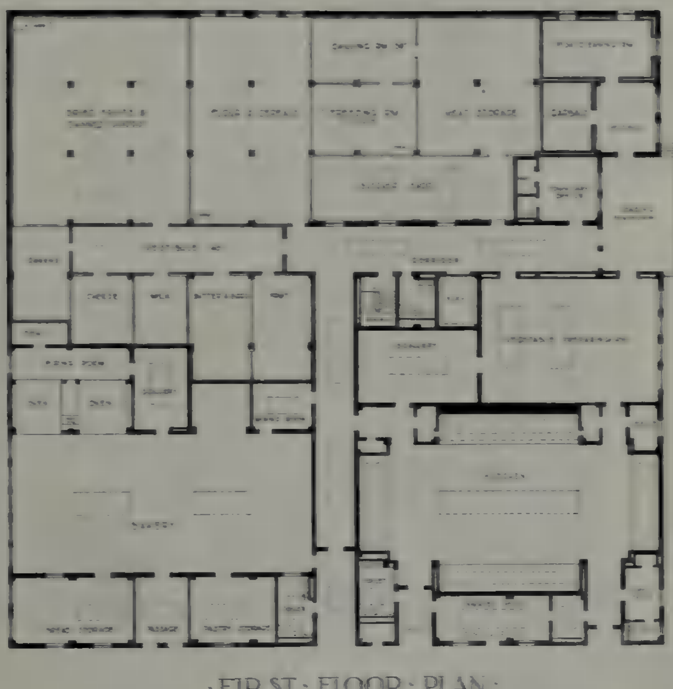
The planning of recreation should include sufficient elasticity and diversity to give every man an opportunity to play.

(*Text continues on page 95*)



AUDITORIUM AND CHAPELS

SING SING PENITENTIARY, NEW YORK

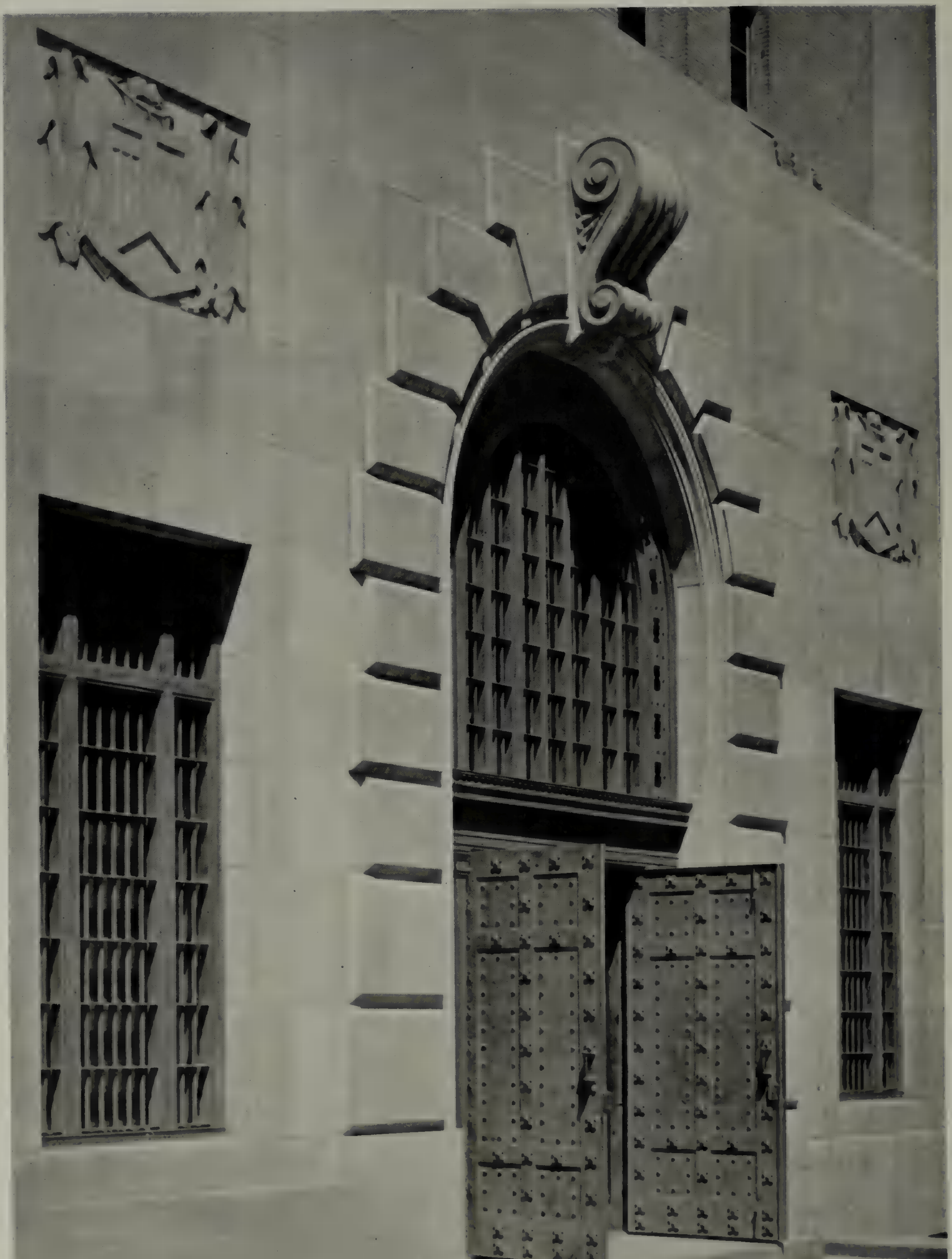


·FIRST·FLOOR·PLAN·

KITCHEN, BAKERY AND STORAGE ROOMS

THE NEW EASTERN STATE PENITENTIARY

ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS



DETAIL, JAIL ENTRANCE

COOK COUNTY JAIL, CHICAGO, ILLINOIS

ERIC E. HALL, COUNTY ARCHITECT, OF HALL, LAWRENCE AND RADCLIFFE, INC., ARCHITECTS

SECTION OF 30 FOOT PRISON WALL SHOWING REINFORCING

THE NEW EASTERN STATE PENITENTIARY
GRATERFORD, PA.

ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS

IX. CONSTRUCTION AND PLANNING DETAILS

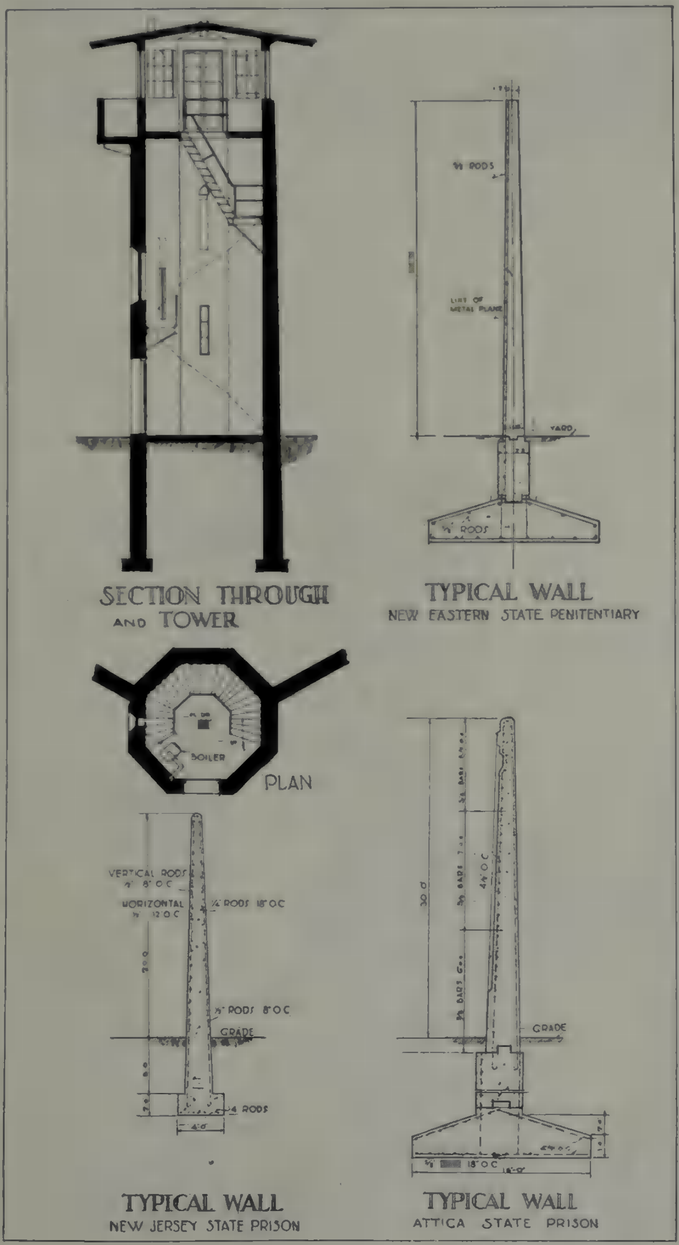
If concrete with the form marks showing is good enough for some of our finest hotels, clubs and churches, it seems preposterous that an expensive veneer of brick should be considered necessary on prison buildings.

A. WALLS SURROUNDING A PRISON

There is considerable difference of opinion as to the desirable height of a prison wall. In the new prison at Norfolk, Massachusetts, the wall is 18 feet high on the assumption that this height is sufficient to prevent a man's vaulting over the wall or being boosted over by other prisoners. It is assumed that since the prisoner will have to use a rope and hook to get over this wall, an additional 5 to 15 feet would not add greatly to the difficulty of escaping. Naturally, the higher the wall, the more difficult to escape, but the problem is largely one of proper balance between different items of expense in the prison. The 18 foot wall is sufficient for the great majority of prisoners but if "break-proof" buildings are not designed for the group requiring maximum security, the wall must be higher or these prisoners must be housed within an inner wall of greater height.

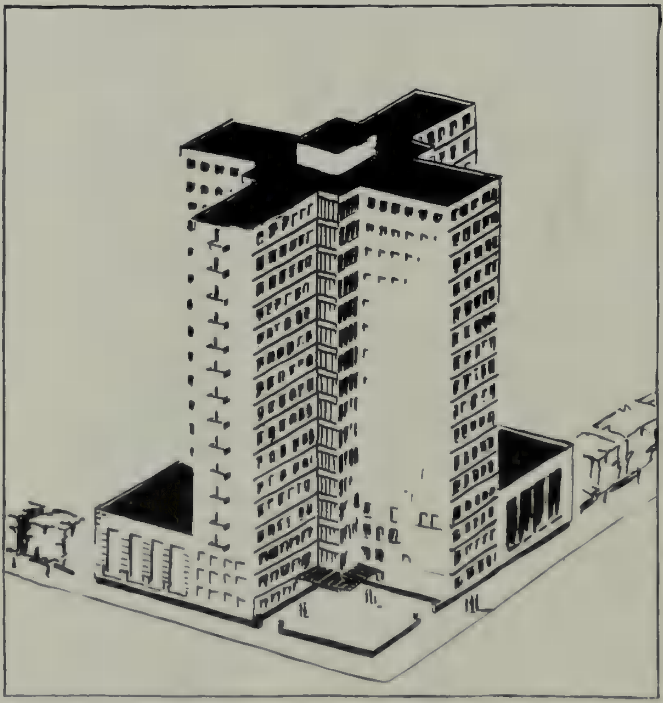
There is a difference of opinion as to whether or not the walls should be surmounted by barbed wire. Some feel that barbed wire, projecting inwards from top of the wall similar to that used on fences around industrial plants, would add to the difficulty of scaling the wall. But even those who suggest using the wire acknowledge that it will be easier to fasten a rope or hook to the wire than to a plain wall with rounded top. Provision may also be made for charging these wires and installing a system which would give an alarm if the wires were cut or grounded. It would not be necessary to keep high voltage in the wire at all times. If the wire does not prove satisfactory in practice, it can be taken down and the supports sawed off.

Future changes and additions in the wall of the new prison at Norfolk, Massachusetts, are provided



CELL HOUSE

WISCONSIN STATE PRISON, WAUKUM, WIS.



A MULTIFLOOR PRISON

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

This type of prison is intended for location in a city. The lower three floors are occupied by court rooms, police headquarters, with penal records and offices. A prison yard at the rear would supplement the exercise space on roofs

for in several ways. Bolts are installed in the outer face so that a raised guard walk or an intermediate guard tower may easily be added in the future should this be found desirable. Conduits are also installed in the concrete for future installation of high voltage wires for charging the barbed wire. Conduits are provided for current for flood-lighting and for the telephone system linking up the several guard towers.

Thickness of Wall: There is also a difference of opinion as to the desirable thickness of wall. Most architects favor the solid wall but some architects and engineers prefer piers approximately 2 foot square spaced on 16 foot centers with light reinforced panels between. The advantages claimed for this panel type wall are that it reduces cost and also prevents cracking through provision for expansion and contraction. A serious objection to this type for a prison wall is that the projecting columns form pockets on the outside where anyone throwing in contraband would be able to conceal himself from the view of the guards in the corner towers. This difficulty can be overcome by having the columns covered by light curtain walls on each surface.

Some prison walls are given an insloping projection at the top. The purpose is to make it impossible to grapple the wall with a hook.

All prison walls should be as smooth as possible to make climbing difficult. Some prisons establish a "dead line fence" 50 or 100 feet inside the wall and sometimes also outside the wall. This makes it more difficult to throw in contraband and adds to the difficulty of escape, since anyone within the dead line zone is in danger of being shot or at least is punished.

One way of preventing escapes over a wall is to eliminate the wall. This has proved satisfactory in several institutions, among them being an institution for the insane in Canada and the prison at Occoquan, District of Columbia.

B. ENTRANCES AND EXIT LOCKS

Assuming that a satisfactory wall has been designed it is very important to provide proper entrance and exit facilities. If possible, these should be reduced to three: a pedestrian lock, a vehicle lock and a lock for freight cars. The problem of designing a lock is not primarily one of getting sufficient strength to resist a riot or sudden attack. Rather it is a problem of necessitating an administrative routine that will make it practically *impossible for a prisoner to escape through trickery or through a threat to the life of a guard.* There have been escapes in which prisoners have driven a truck through the lock disguised as prison guards, also escapes through the pedestrian lock by threat to kill the guard unless he unlocked the gates.

The accompanying plan practically eliminates any danger of escape through the locks. A prison guard is stationed in the entrance lock. He has but one key for all the doors which enter into this lock. This key cannot be removed from the lock except when the doors are closed and locked. The procedure on a prisoner's going out through the lock is as follows: (1) The guard opens the door from the main corridor of the prison into the lock. (2) After the prisoner has entered, the guard locks the door and removes the key which will be used to unlock the exit door. (3) Before doing this he must pass through the door into stair hall and report to the guard in the control room who has an electric control of the lock on the exit door. The purpose in requiring the guard to leave the entrance lock and enter the stair hall with a bullet-proof door between himself and the prisoner or prisoners is to prevent a prisoner who may have obtained fire-arms, from intimidating the guard into letting him through. (4) The guard opens the outer gate.

Should a prisoner attempt to force a guard to let him out without first going into stair hall, the guard in the control room would know something was wrong and he could fire on the prisoner or discharge tear gas in this lock. It would be of no value for the prisoners to get the guard's key as the doors are also electrically controlled by the guard in the control room.

The procedure in the vehicle lock is the same. All of this will slow down movement through the lock but it will create a routine which will prevent escapes through carelessness or intimidation.

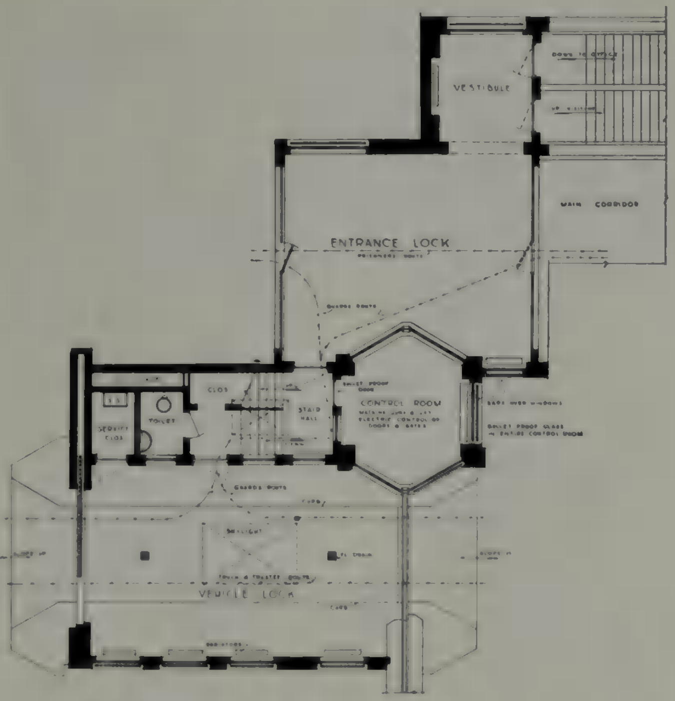
The exit lock for railway cars will also be electrically controlled from the central control room but in this case the intention is to shunt cars only if all prisoners are in their cells and accounted for.

A derail switch should be placed in the lock so that if prisoners capture an engine (as has been done) they cannot crash the gate. The gates must be strong enough to eliminate any chance of a truck's breaking through them.

C. WINDOWS

1. Semi-Detention Sash: Some architects and prison officials believe that the placing of a high wall around the prison gives sufficient security so that the factory type of steel sash may be used instead of the usual barred window. These windows would consist of ordinary industrial sections and construction with 6″ x 9″ lights, the ventilators being of the tilting pivoted type constructed to limit the opening at top and bottom to not more than 6″.

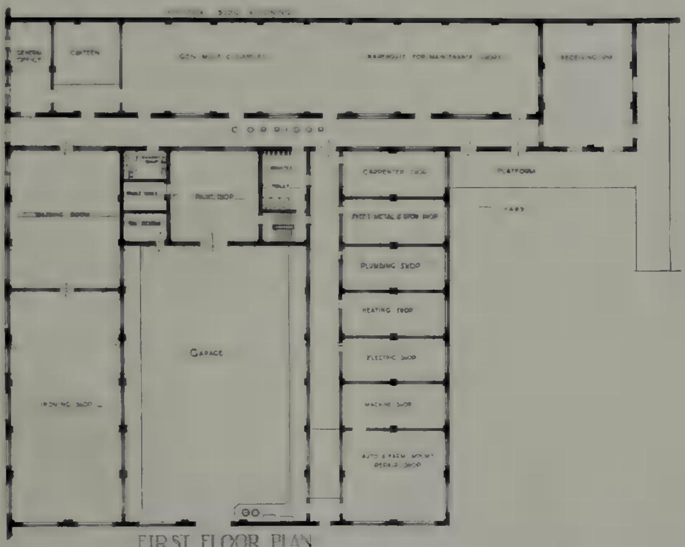
A window of this type using the deepest and heaviest industrial bars now marketed and of the strongest standard industrial construction, glazed from the outside, was recently subjected to a test which showed that a prisoner equipped with a lever could readily pry loose a ventilator leaving an opening of approximately 2′ 10″ x 7″, which is large enough to permit escape. The remaining or fixed portion of the window proved reasonably escape-



PLAN SHOWING ENTRANCE LOCK
FOR PEDESTRIANS AND VEHICLES

NEW EASTERN STATE PENITENTIARY
GRATERFORD, PA.

ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS

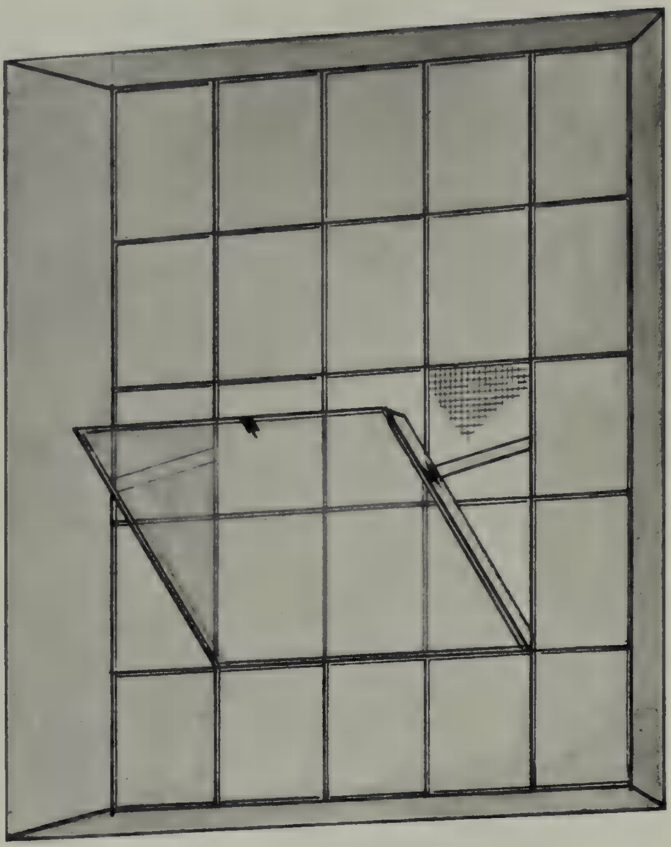


FIRST FLOOR PLAN

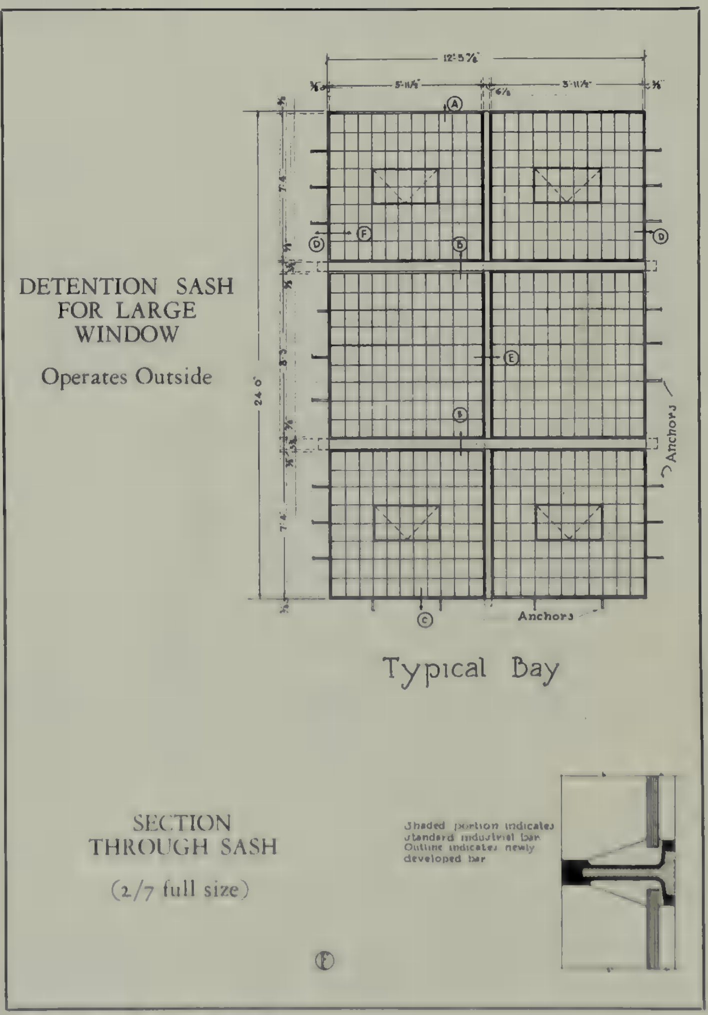
SERVICE BUILDING

NEW EASTERN STATE PENITENTIARY,
GRATERFORD, PA.

ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS



DETENTION SASH FOR OUTSIDE CELL



DETENTION SASH FOR LARGE WINDOW

Operates Outside

12'-5 7/8"
5'-11 1/2"
5'-11 1/2"
6 7/8
24'-0"
7'-4"
8'-3"
7'-4"
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Anchors
Anchors
Typical Bay
Shaded portion indicates standard industrial bar. Outline indicates newly developed bar

SECTION THROUGH SASH

(2/7 full size)

Ⓕ

Courtesy of Wm. Bayley Company

proof although the prison officials interested did not feel that it approached in value the usual bar guard which it replaced. This type of window is satisfactory when its main function is to prevent visiting or leaving the cell without committing an overt act.

2. *Bars or Detention Sash:* While a prison wall minimizes the chance of escape, it is desirable that buildings for prisoners requiring maximum security (and detention jails *without* walls or tower) have window openings as nearly escape-proof as modern methods and design will permit. This may be accomplished by the age-old method of having bars outside the window. This was logical when wood sash were used but now that steel sash are customary, the use of two separate steel units, one to form a guard and another a window, is inefficient and needlessly expensive.

The William Bayley Company, cooperating with prison architects and prison officials, has developed a combined guard and screen which gives an economical solution of the problem; it also effects a marked improvement in exterior and interior appearance through the elimination of the older style of bar guards.

A test conducted in the presence of prison officials clearly demonstrated that more time was required to saw through the new detention sash bar than through the usual round bar used in the old-fashioned guard (both bars having approximately the same carbon content and being equal in hardness). An escape is possible through the old construction by making only one saw cut, but with the detention sash two sash bars must be cut.

Ventilation is accomplished by leaving certain predetermined groups of lights unglazed over which a hinged ventilator is located on the inside face of the fixed window. The ventilator can be completely destroyed in an attempted escape without in any way changing the effectiveness of the window as a guard. Flat metal screens may be attached over the ventilating areas. Where large windows are used, as in dining rooms, the auditorium or windows of cell house containing a cell block, group control of ventilators is obtained by a rack and pinion operating device. This should be located on the outside of the building so that there will be no pipes or rigging inside on which the inmates can climb.

In large rooms it is advisable to place the windows as near the inside face of the wall as possible to avoid ledges at the sills and deep shadows at the jambs, so that a prisoner attempting to work anywhere on the inside face of the window would extend so far into the room as to be easily seen from a considerable distance. For individual cells or rooms the windows should be placed near the outside wall of the building, as this will make it easier to detect broken glass or to discover anyone who might be working on a window bar.

D. CELL DOOR LOCKING DEVICE

A central locking device for cell or room doors should meet the following specifications:

When doors are being opened, they shall snap lock in open position. When in this position they may be released as a group with the control lever or individually by key.

As the doors are being closed, each door shall be automatically blocked to prevent reversing its direction in the last 12″ of travel. This condition shall be releasable individually by key.

When the doors are fully closed, they shall snap-lock. The "snap lock" shall be releasable with the control lever for the group, or individually by key. When in this position the doors may be individually key-locked in addition, to prevent their being unlocked with the control lever.

The locking device should permit "dead locked" position from which it will be impossible to open any individual door by individual key or by springing a snap lock.

This device must be so designed, located and built as to eliminate any chance of tampering with its mechanism. The mechanism must be so planned as to eliminate the possibility of any prisoner's being able to prevent locking or unlocking of other cells by blocking his own door. This is a favorite trick which can be prevented only by provision for independent operation of doors in case one is held.

Elaboration beyond these requirements is a needless expense. The accompanying drawing shows a simple locking mechanism which combines these essentials.

E. VISITORS

The precautions necessary to prevent transfer of contraband from visitors to prisoners will vary with the type of prisoner and the judgment of prison warden. The general custom is to search visitors for weapons, drugs, files, liquor, or other contraband when they enter the prison. This is thought to be sufficient in some cases and the prisoners are permitted to see their visitors without any screen between them. In most prisons, however, the visitors' room is divided from the prisoners' room by a wire screen. Sometimes two screens are placed several feet apart to make it more difficult to pass drugs and other contraband. Some recent prisons have installed shatter-proof glass in partitions separating the prisoners from their visitors with special apparatus which permits conversation through the glass but which prevents the passing of any object. It is quite possible that all three types should be used depending on the security group for which plans are being prepared.

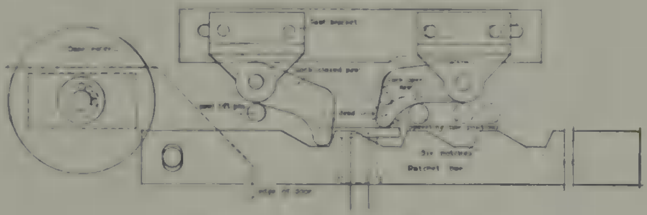
F. HEATING

As a general principle it is advisable to use steam heat in public institutions since this or hot water

CELL HOUSE INTERIOR

THE NEW EASTERN STATE PENITENTIARY, GRATERFORD, PA.

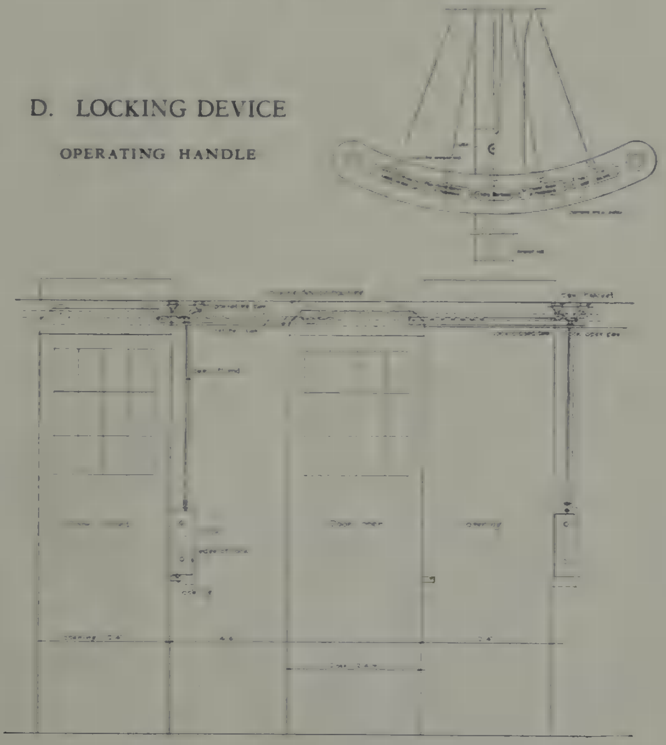
ZIMMERMAN, SAXE AND ZIMMERMAN, ARCHITECTS



DETAILS · OF LOCKING DEVICE·

D. LOCKING DEVICE

OPERATING HANDLE



ELEVATION SHOWING POSITIONS OF DOORS & LOCKING DEVICE OPEN & CLOSED permits much easier alterations or additions. To prevent waste of heat on mild days it is well to install valves which will automatically turn the steam off and on.

Individual oil burner boilers may be found economical when the cottage system is used if the cottages are widely distributed.

In a large room, such as that containing an inside cell block, considerable care must be taken to insure proper distribution of heat. Unless ample forced circulation is provided for and *maintained*, there may be a difference of 10 or 15 degrees between lower and upper cells.

If the central interior cell block is adopted, a practical heating system is the one to be used at Riker's Island, consisting of a combined heating and ventilating system, placed in the attic, and air ducts carried to a termination near the floor. This system, however, makes it impossible to heat the building without running the fans.

The plan adopted in the Attica and Chicago prisons, of running floors through to the outer walls, prevents an accumulation of hot air in the top of the building and reduces the heating and ventilating problem to an ordinary one.

Special care must be used in selecting vent outlets or radiators, to eliminate opportunities for hiding saws, drugs and other contraband. Steam pipes are generally preferable to radiators on this account. Cells to be used for criminal insane or in jails for detention of drunks must have heating so arranged as to eliminate entirely any possibility of a prisoner's being burned.

Some ventilating systems recently installed have given an easy means of escape.

IN CONCLUSION

It must be remembered that the architect's advice as an authority on construction is modified by the ideas, ideals, and wishes of the boards or officials he finds in charge of the project. The site is part and parcel of the plan and the two must be considered in relation to each other; likewise the type of administration that is proposed must be so definite that the architect can rely on seeing it carried out after the building has been completed.

An efficient building is the expression of a particular administrative plan; radical changes in personnel or procedure will do it violence, and make an inadequate, lopsided or antiquated thing out of the best building that an architect could possibly have worked out. The architect can help to avoid such results by making positive use of his disinterested influence on the side of every proposal that seems nonpartisan and humane.

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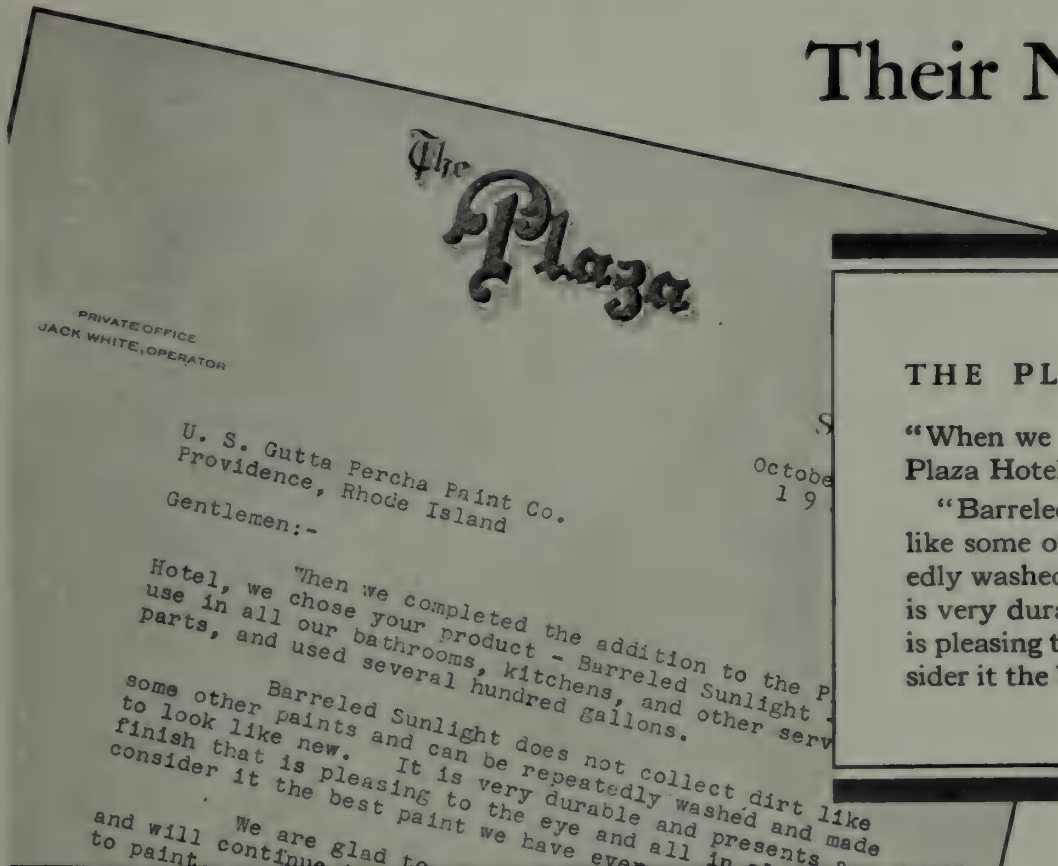

The Plaza

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JACK WHITE, OPERATOR

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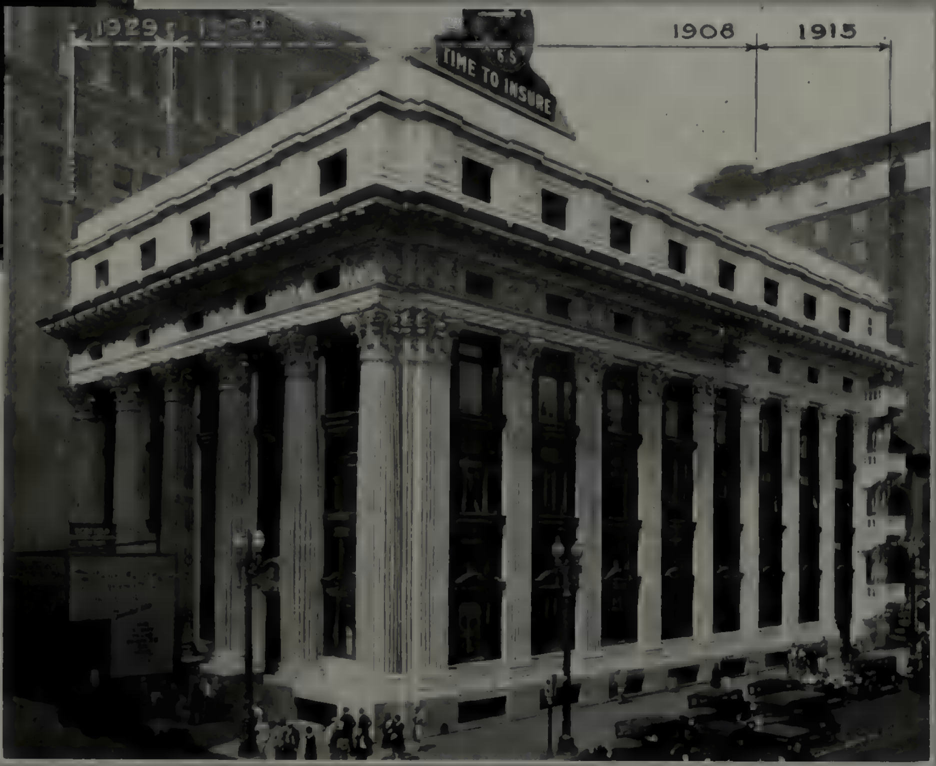

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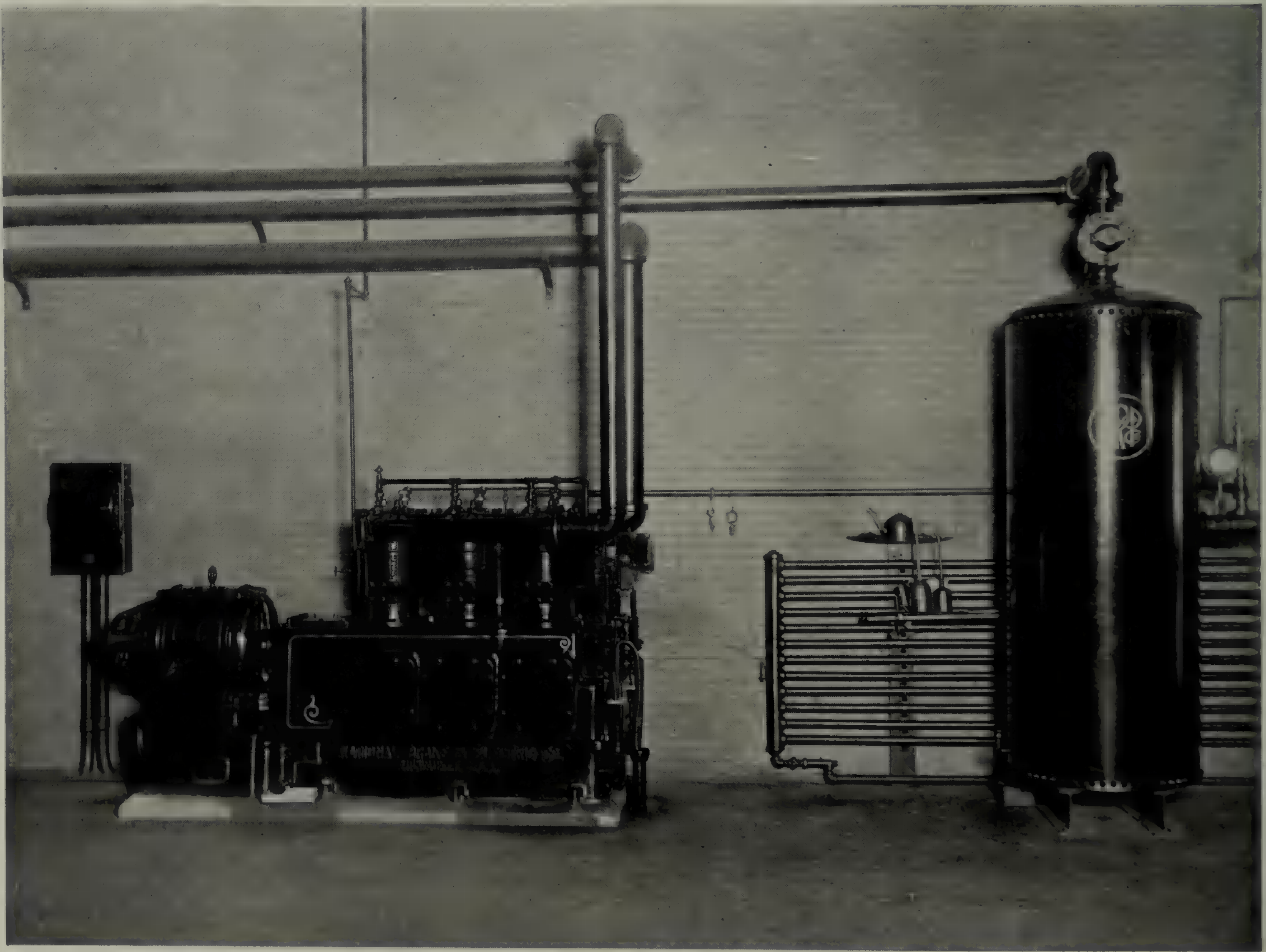

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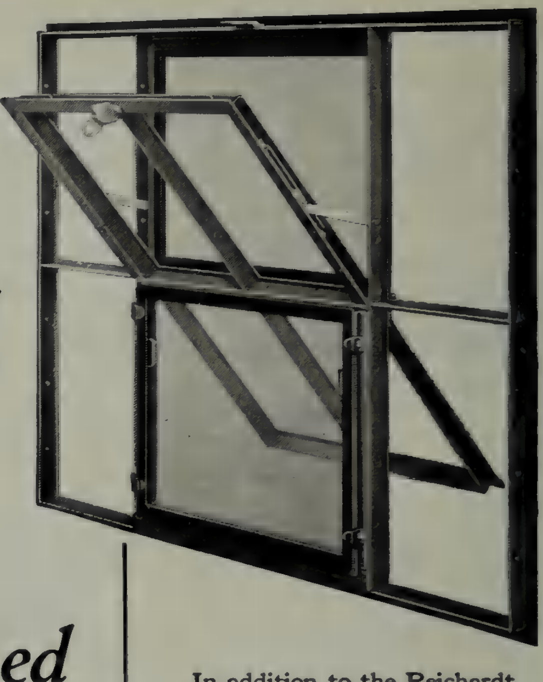

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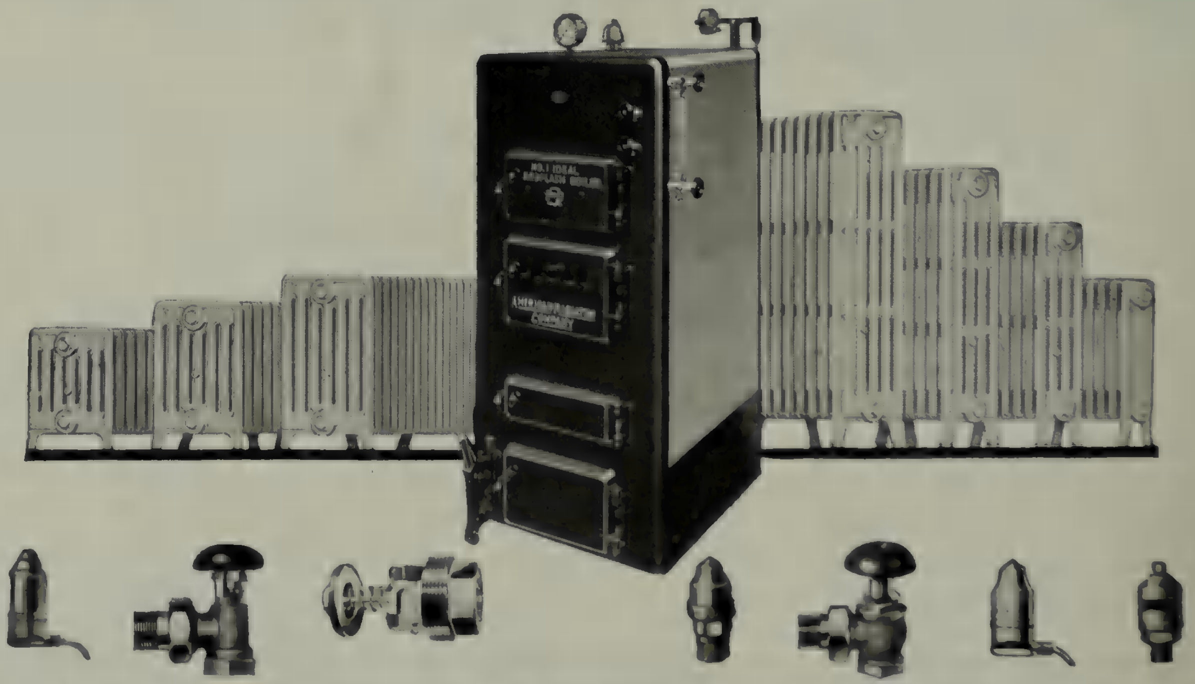

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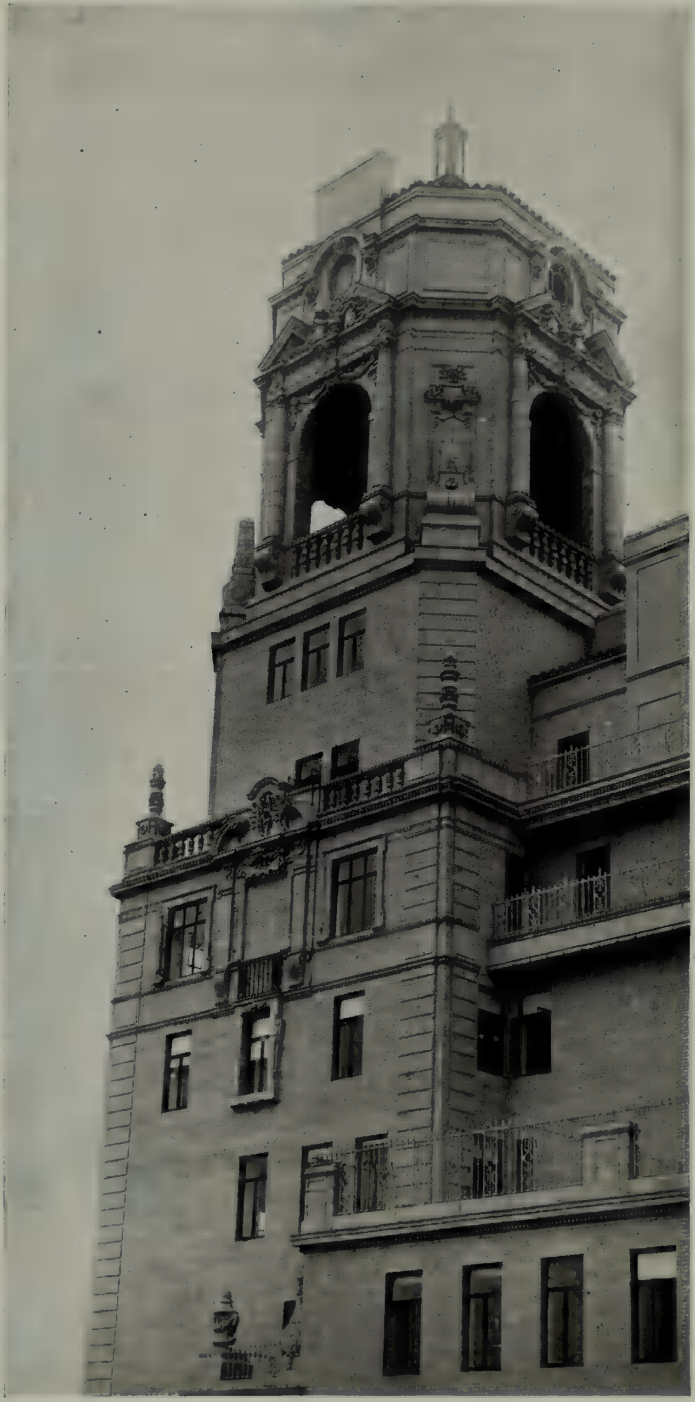

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Architect

H. R. H. CONSTRUCTION CO.
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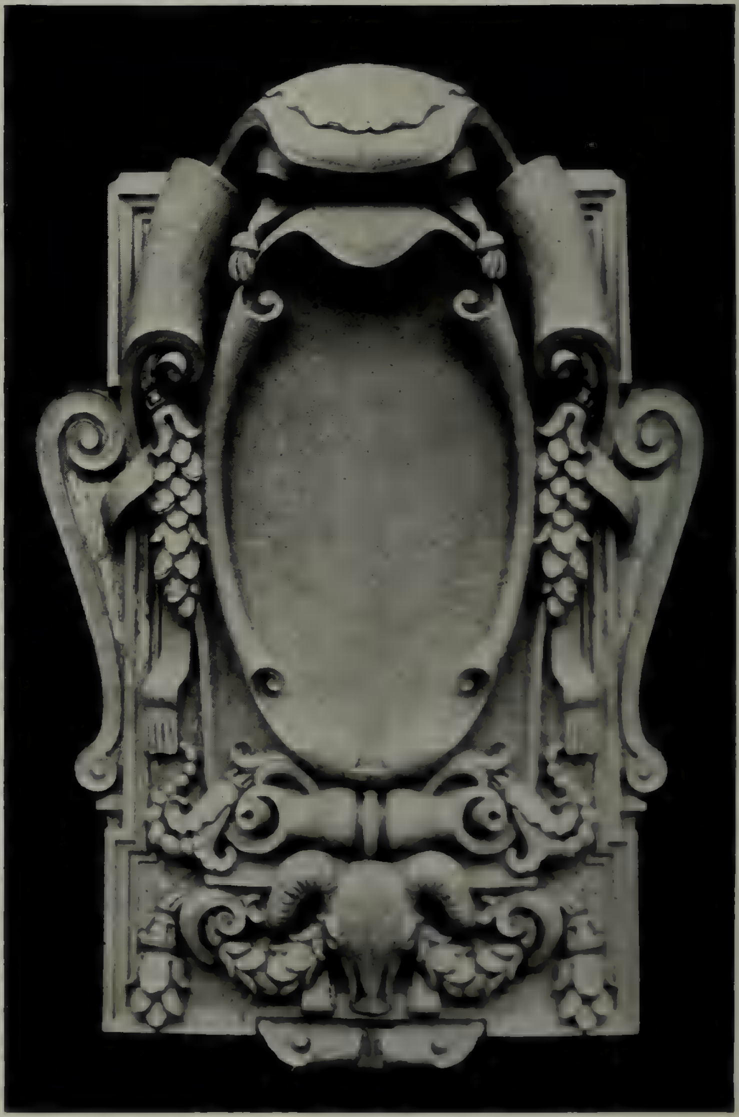
Federal Seaboard Terra Cotta makes this building the architecturally outstanding structure it is.



Terra Cotta cartouche at upper setback

ONE of the four towers of the Beresford Apartment House, 81st Street and Central Park West.

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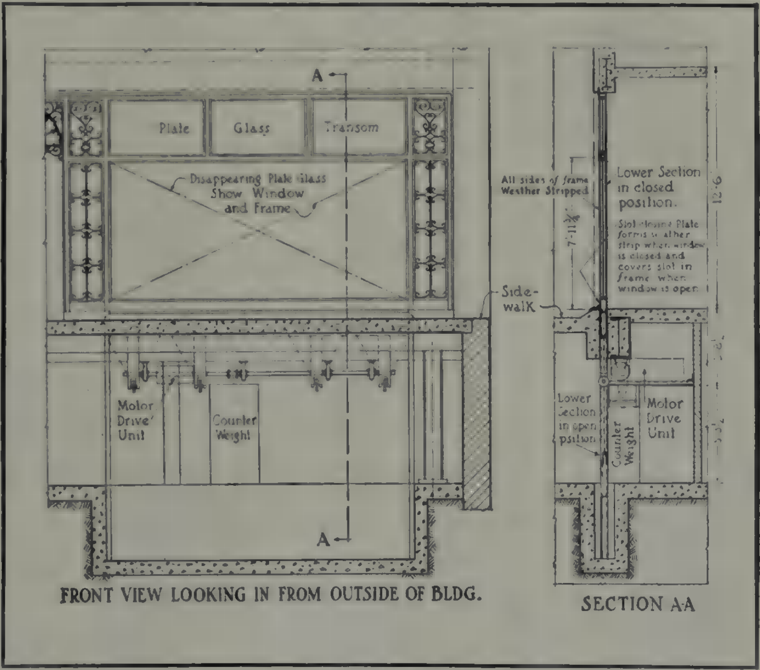
A
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Glass
Transom
Disappearing Plate Glass Show Window and Frame
Motor Drive Unit
Counter Weight
A
All sides of frame Weather Stripped
7'-11½"
Lower Section in closed position.
Slot closing Plate forms weather strip when window is closed and covers slot in frame when window is open
12'-6"
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Lower Section in open position
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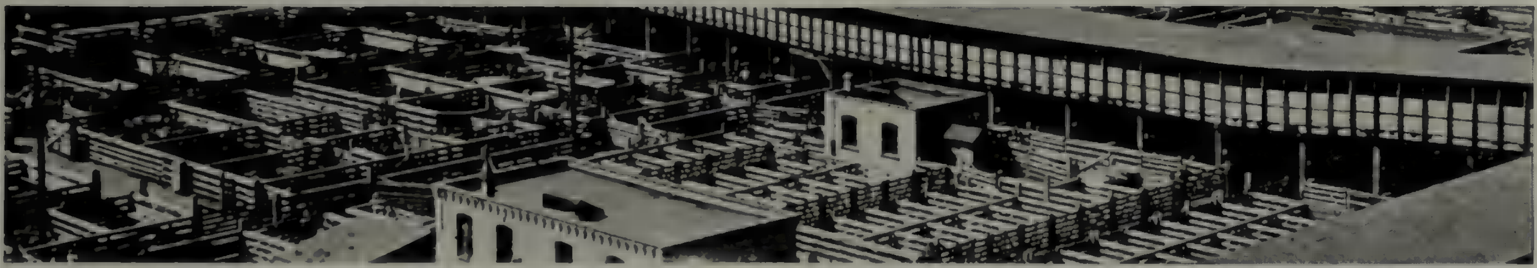

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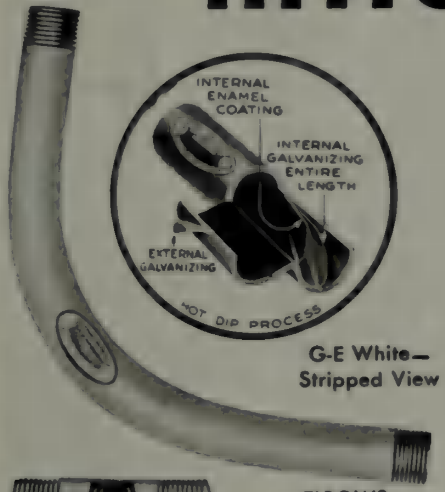

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in the beautiful Lexington

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General Contractor: Turner Construction Company, New York City
Heating Contractor: Baker, Smith & Co., New York City
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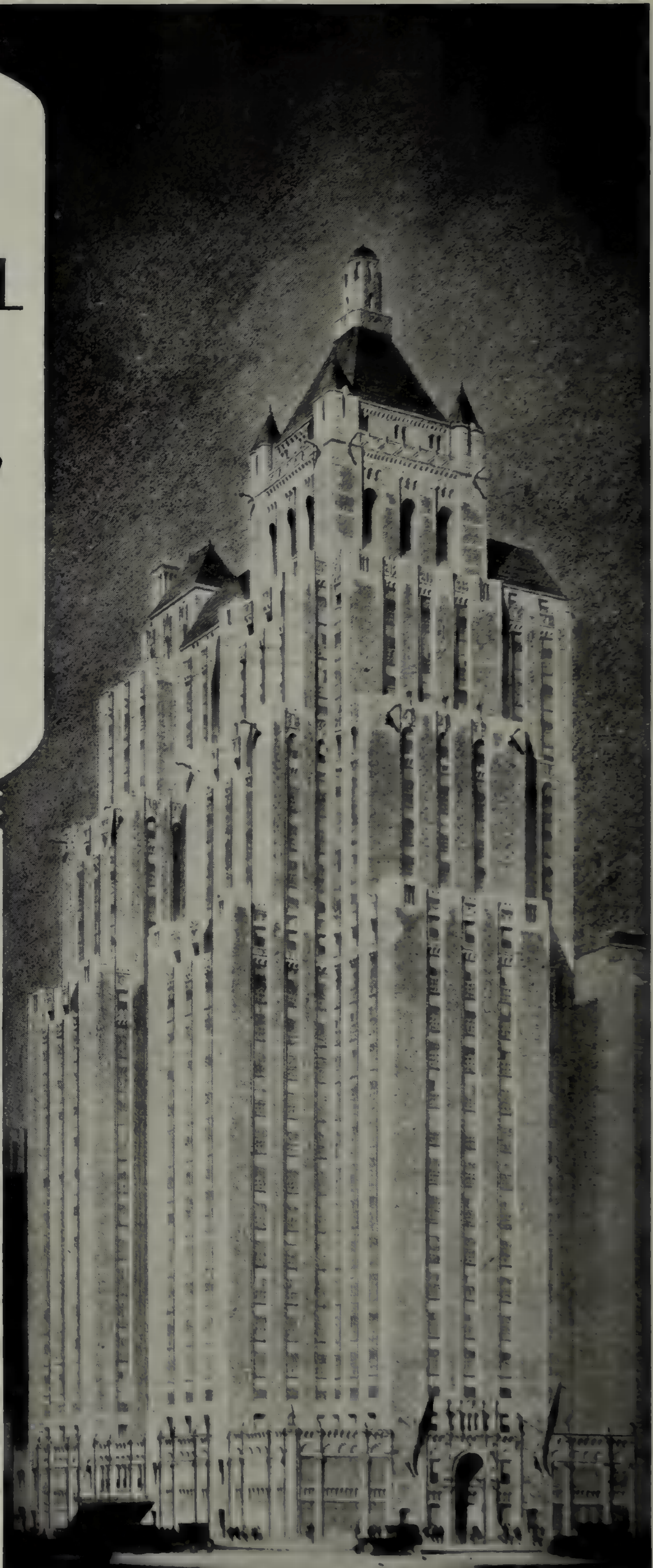

NEW York's newest hotel . . . an exemplification of modern hotel creation . . . beautiful without . . . beautiful within. Situated in the Grand Central Zone of America's greatest city, the Lexington boasts of impressive companionship . . . many of New York's finest buildings are its neighbors. In this zone are the Chrysler Building, Chanin Building, Graybar Building, Postum Building, New York Central Building, Park Lane Hotel, Roosevelt Hotel, The Barclay, and the Ambassador . . . all mighty in their fame . . . all contain National Pipe.

Thus, the architects, contractors and engineers, valuing highly the responsibility of planning such a structure, specified and used tried and proven equipment . . . equipment that befitted the building . . . its neighbors. National was used for the major pipe tonnage, including National Copper-Steel Pipe (especially resistant to atmospheric corrosion) in the soil, waste, vent lines and rain leaders. National Copper-Steel Pipe was also used in part of the drainage lines of the Chrysler Building, mentioned above.

Send for Bulletin No. 11, describing

NATIONAL COPPER-STEEL PIPE
The Original Copper-Steel Pipe

NATIONAL TUBE COMPANY

Frick Building, Pittsburgh, Pa.

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More than 400,000 feet of Port Orford Cedar trim and paneling and 35,000 feet of detail panel moulding were used in this unit of the Biltmore Hotel, Los Angeles. All rooms and corridors above the main floor, as well as all dining rooms, are finished in this wood. Schultz & Weaver, Architects.

New York architects *select this cream-white wood*

SIGNIFICANT of the merits of Port Orford Cedar was its selection by Schultz & Weaver, architects of New York, for interior finish of one of America's finest hotels—the Biltmore at Los Angeles.

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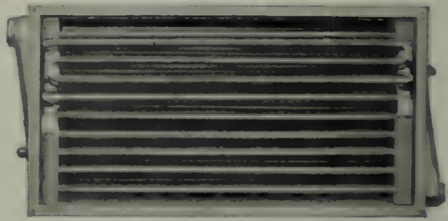

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In buildings of all kinds, many uses of the Public Address System suggest themselves. Architects are specifying it for hotels, hospitals, schools, clubs and auditoriums.

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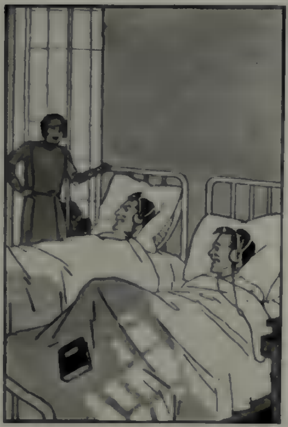
For full information, consult Sweet's Catalogue. Or send for interesting booklet to the distributor, Graybar Electric Company, Graybar Building, New York, New York. Offices in 73 principal cities.



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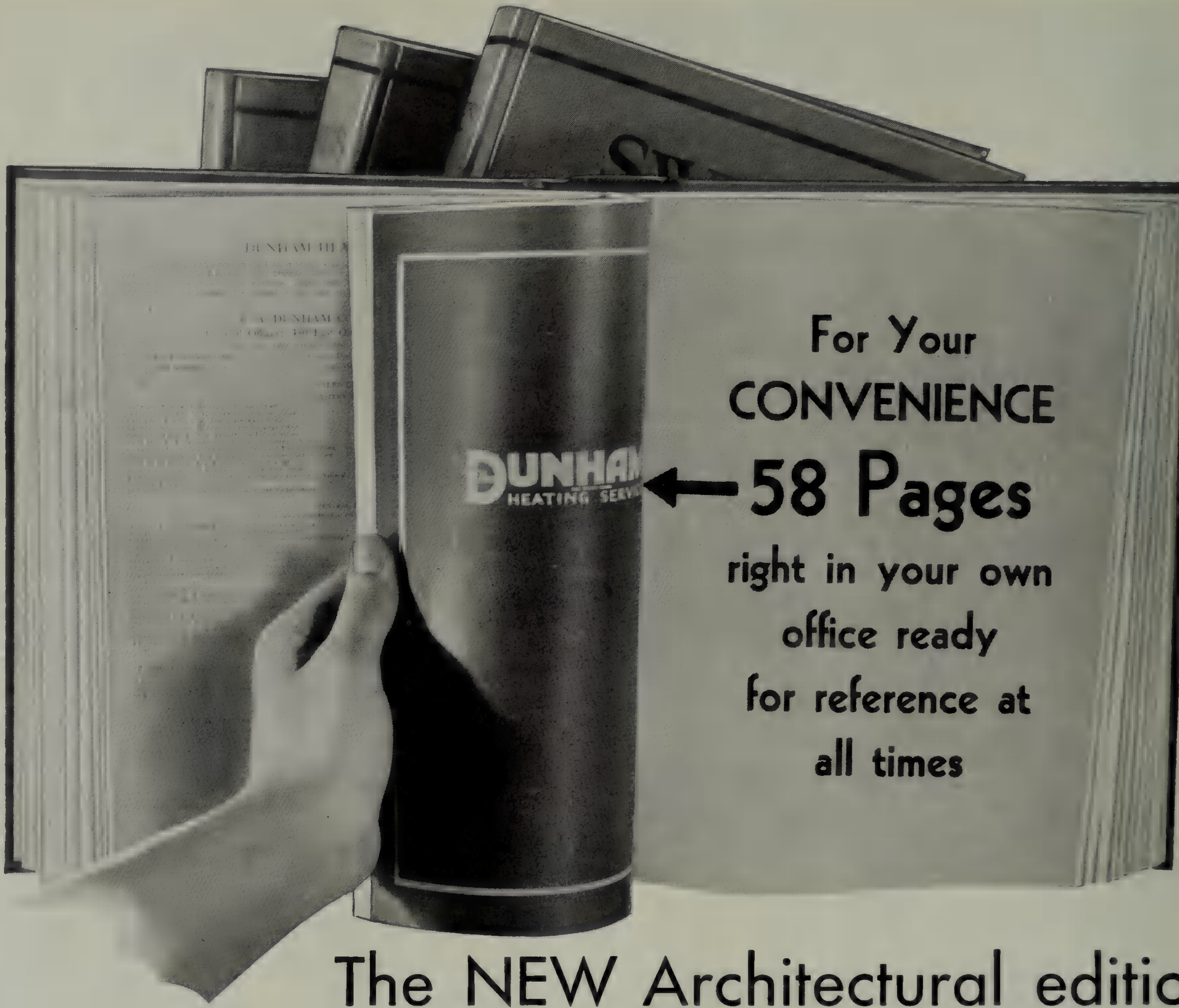

The NEW Architectural edition of the DUNHAM HANDBOOK

is in Sweet's Complete data on the exclusive design and operating features of Dunham Differential Heating is published this year as a 58 page section of Sweet's Architectural Catalogs. All the essential information for heating system layout is included in convenient form, with tables of pipe sizes, radiation requirements, dimensions, and installation and operating data as well as specifications adaptable to all types of buildings.

This handbook will be supplemented by the complete Dunham service which is available from each of the 80 sales offices listed.

Look through the blue-cover Dunham section in Volume D of Sweet's 1930 Catalogs now. Consult its 58 pages of data when you plan the heating system for any client who will appreciate 25 to 40% fuel savings PLUS the finest character of heating service.

Over 800 installations in all types of buildings, many of them replacing other heating systems, show fuel economy that can only be described as remarkable. Savings from 25 to 40% are fully authenticated. Combine this with control so perfect that occupants are not conscious of the heating system and you will see why those who know Dunham Heating are enthusiastic about it.

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202 Plant Engineers Say *"Harden Concrete Floors"*

C 257 engineers, reporting in a survey by the H. P. Gould Company, were asked, "Has it been your experience that hardened concrete floors are sufficiently more efficient and longer-lived to warrant the additional cost of the hardening treatment?"

202 said "Yes." 36 said "No."

Photographs of typical floor conditions upon which these experiences are based are reproduced here.

These figures and photographs confirm the judgment of most of the country's architects that a good concrete floor *hardened* costs less per year of service than a good concrete floor *unhardened.*

The question has really passed that stage. Today the problem is one of intelligent selection—the *type* of hardener to use for the wear to which a particular floor will be subjected.

To architects who can use facts collected impartially and inclusively over a period of twenty years on all classes of hardeners as well as on plain concrete, the Master Builders Company—pioneers, specialists and leaders in the hardening field—can be of considerable service. Write for 28-page book, "The Fifth Ingredient," from which the above survey figures and photographs have been reproduced. *The Master Builders Company, 7020 Euclid Ave., Cleveland, Ohio.*

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Metalicron—an iron floor-finish aggregate, or metallic hardener, highly refined, plus Omicron.* Produces a surface half iron, half cement. Most wear-resisting, chemical-resisting concrete—waterproof, dustproof. For monolithic or topping finish.

"For Commercial Floors"

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"For Colored Floors"

Colored Metalicron (*see above*) also *Colormix*—a paste, mixed with the gauging water. Produces uniform, fadeproof colors throughout topping. Hardens, waterproofs, dustproofs. Plus Omicron.* Floor protected from stain during building construction. These two products are leaders of a complete line of concrete colorers and hardeners for all types of decorative floor concrete.

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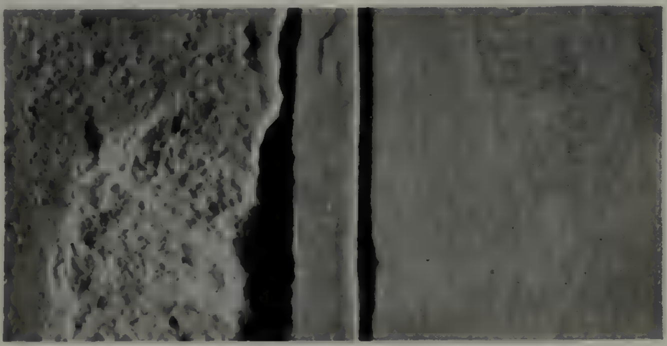
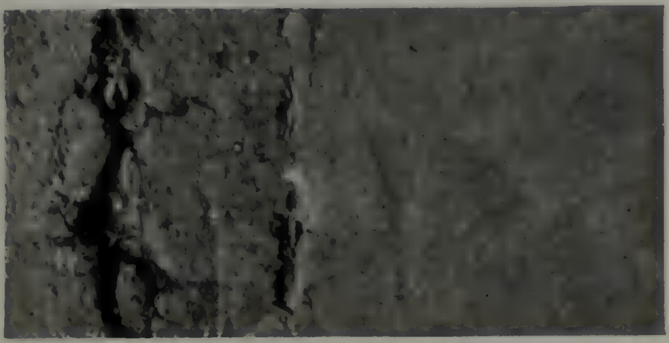
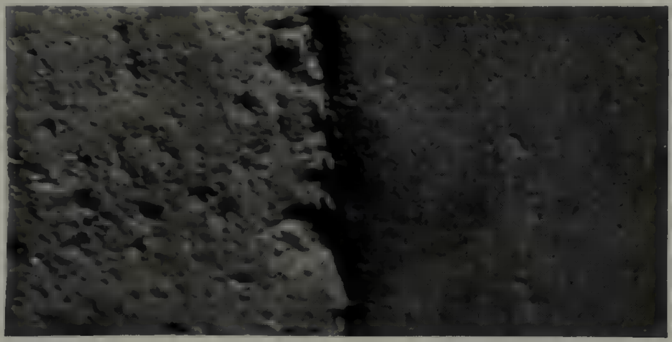


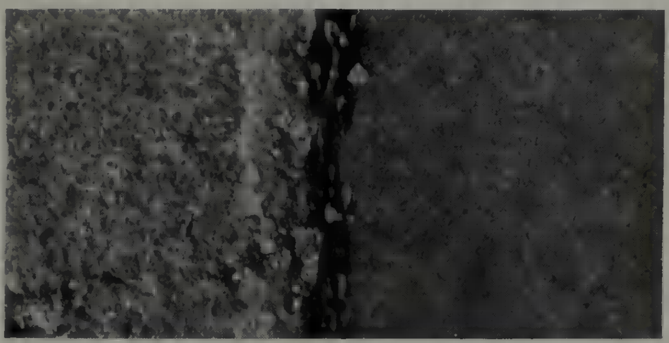
Plain concrete floor (left) and *Masterbuilt* floor join in Pennsylvania Railroad Station, Cleveland. Both installed 1912. Hardened area subject to twice the traffic.



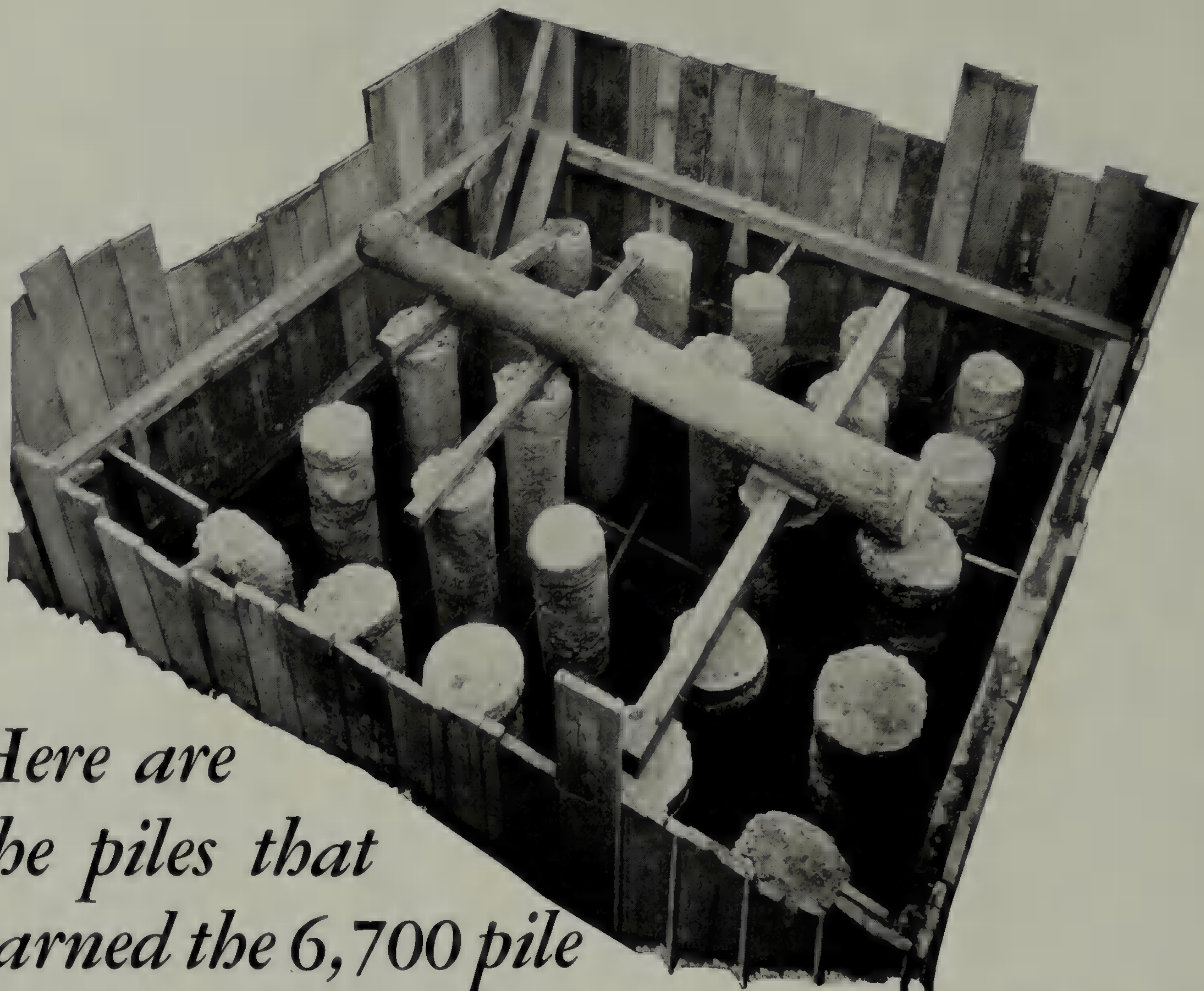
Where plain concrete floor (left) joins *Masterbuilt* floor in trucking aisles of the American Blower Company's Cincinnati plant. Same traffic for over eight years.



Where nine-year-old plain concrete floor (left) joins thirteen-year-old *Masterbuilt* floor in doorway of shipping Department, Richman Bros., Cleveland.



Olympia Sports Arena, Detroit. *Masterbuilt* floor joins plain concrete (left.) Subject to same traffic over same period of years.



Here are the piles that earned the 6,700 pile contract for Milwaukee County Court House

Milwaukee, Wisconsin · A. RANDOLPH ROSS, Architect

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PRODUCT	*proven*
EXPERIENCE	*19 years*
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"This cluster of piles which averaged 12′ in length was excavated to a depth of 8′ to 9′. The center pile, No. 13, was excavated to its full length and pulled out.

"The piles were found to be standing vertically on 2′ 6″ centers.

"The pile shafts were practically straight, tapering to a slightly larger head about 3″ to 4″ larger than the shafts which averaged 16″ in diameter with a minimum diameter of 15″.

"No honey combing was noted on the slightly roughened surface of the piles. Concrete specimens broken from the pile shafts showed aggregate completely incorporated in cement paste."

From signed report of Pittsburgh Testing Laboratory (Aug. 5, '29.)

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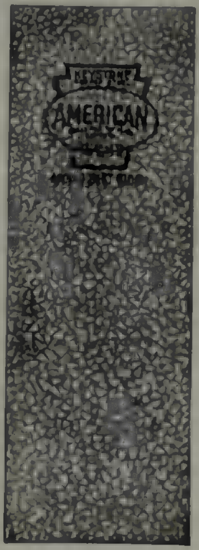

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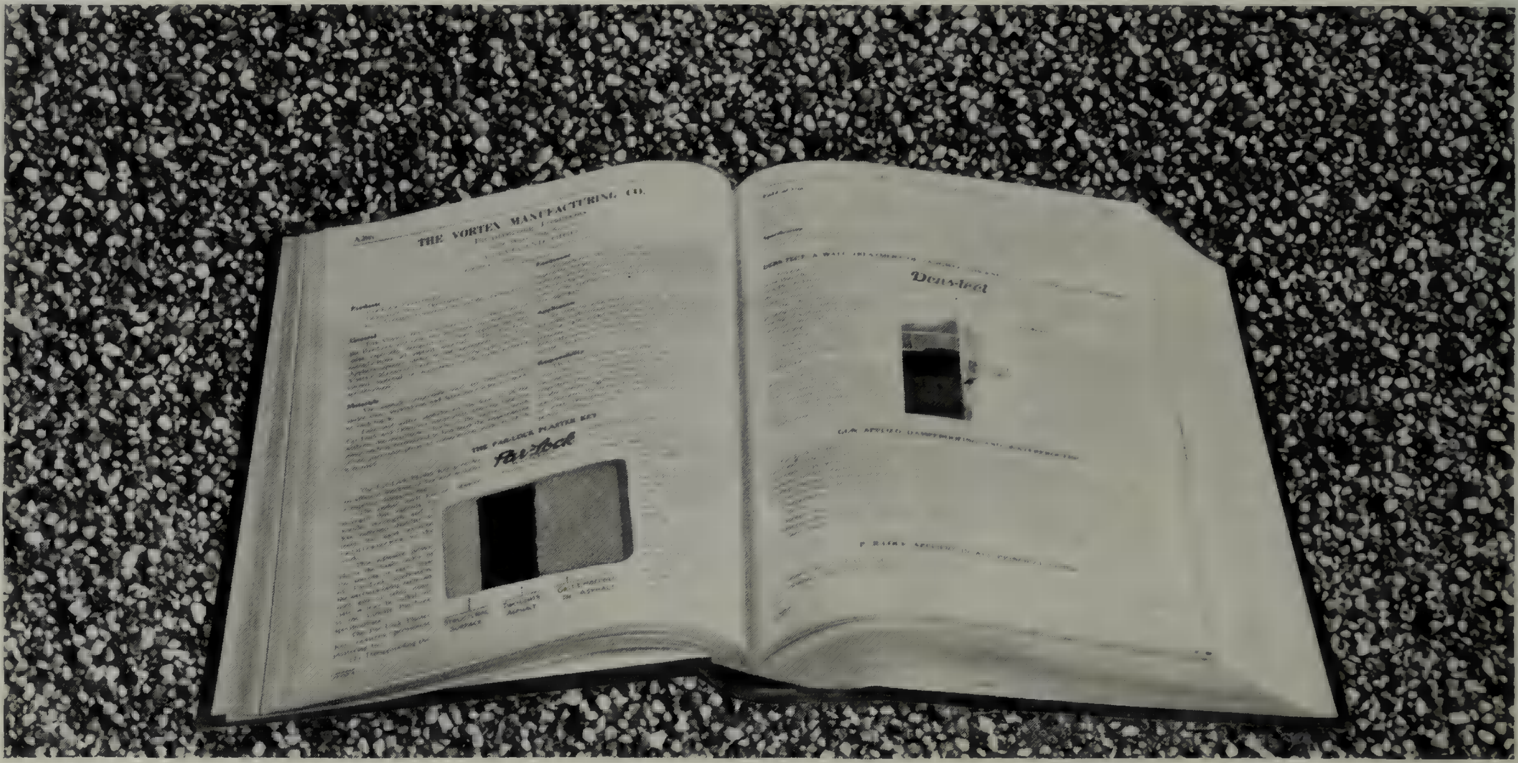

The Whole Story, Simplified in Sweet's Pages A286-287

TO comprehend Par-Lock and Dens-tect it is only necessary to turn to the concise, accurate explanation in Sweet's Catalogue, Pages A 286-287. ¶ To apply this knowledge to your own problem, with accurate estimate of costs, get in touch with the nearest Par-Lock Applier. ¶ You will not be bombarded with Par-Lock literature in 1930. We propose to save your time and our money by confining the Par-Lock and Dens-tect stories to this convenient work of reference. ¶ Par-Lock Products, always coupled with efficient Par-Lock applying service, afford you a complete range of pre-plastering treatments for masonry surfaces plastered direct . . . as well as a variety of dependable damp-proofing and water-proofing treatments.

Par-Lock
Plaster Key

For quick attention in applying centers, you will find Par-Lock Appliers, listed as such in local phone directories.

Dens-tect
Protects Plaster

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BUFFALO,
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CHICAGO,
862, Builders Bldg.
CINCINNATI, OHIO
611 Dixie Terminal Bldg.
CLEVELAND,
218 Hunkin-Conkey Bldg.
COLUMBUS,
751 South Cassingham Rd.
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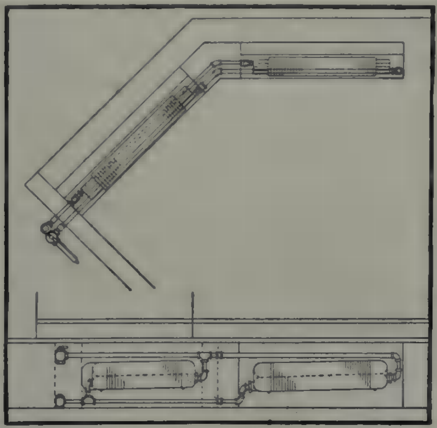

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for your convenience the new HOLTZER-CABOT catalogue is filed in SWEET'S

Vol. D, pages D-5353—5385

The new Holtzer-Cabot catalogue is in your office—filed in Sweet's. Turn to page D-5353 for complete information on

- Annunciators:
  - Lamp Type
  - Target Type
- Bells and Buzzers
- Connectors
- Fire Alarm Systems:
  - Hotel
  - Industrial
  - Institutional
  - School
- Hospital Signal Systems:
  - Doctors' In-and-Out Register
  - Doctors' Paging
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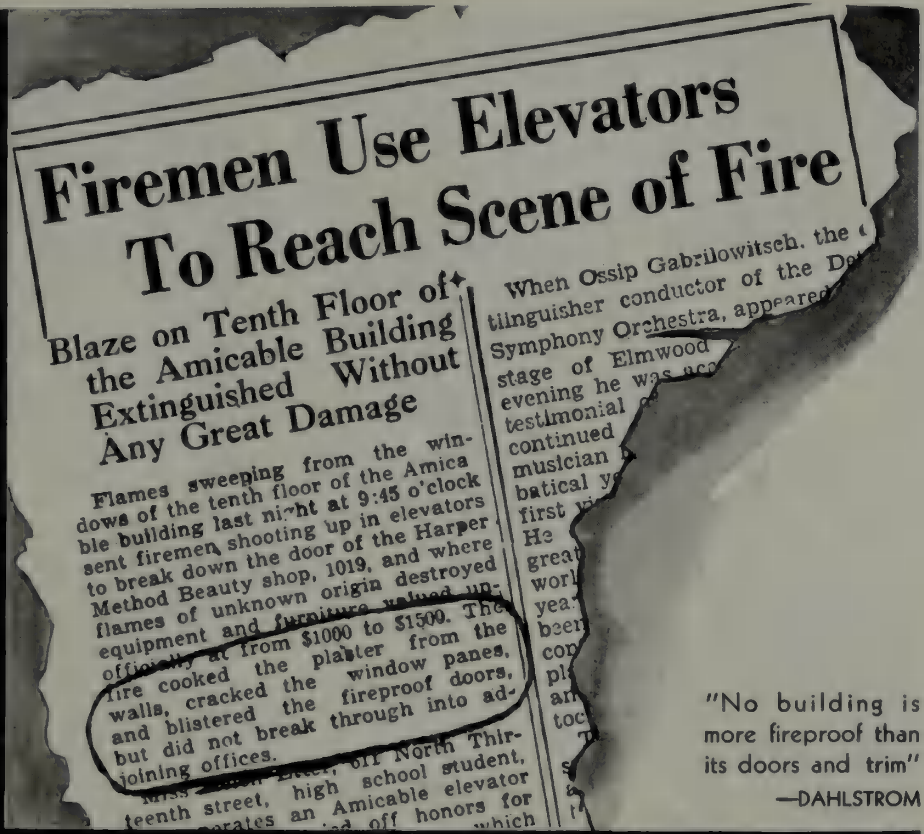

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Blaze on Tenth Floor of the Amicable Building Extinguished Without Any Great Damage

Flames sweeping from the windows of the tenth floor of the Amicable building last night at 9:45 o'clock sent firemen shooting up in elevators to break down the door of the Harper Method Beauty shop, 1019, and where flames of unknown origin destroyed equipment and furniture valued unofficially at from $1000 to $1500. The fire cooked the plaster from the walls, cracked the window panes, and blistered the fireproof doors, but did not break through into adjoining offices.

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tinguisher conductor of the D
Symphony Orchestra, appeared
stage of Elmwood
evening he was acc
testimonial
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DRAWINGS BY ERICH JOHN

LIGHTING—a new factor in design

No. 9
of a series

—showing interesting examples of the trend of today in modernistic architectural design. Above is a night view of the facade of the Titania-Palast, Berlin-Steglitz, for which Schoffler, Schlonbach and Jacobi of Dusseldorf were the architects. The lighting effects are of unusual interest as an element in the design.

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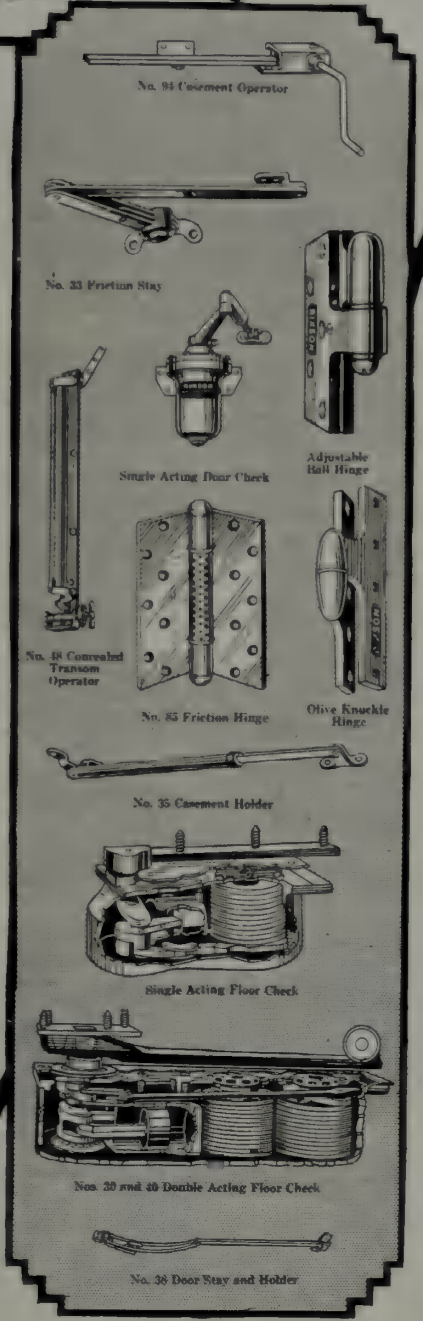

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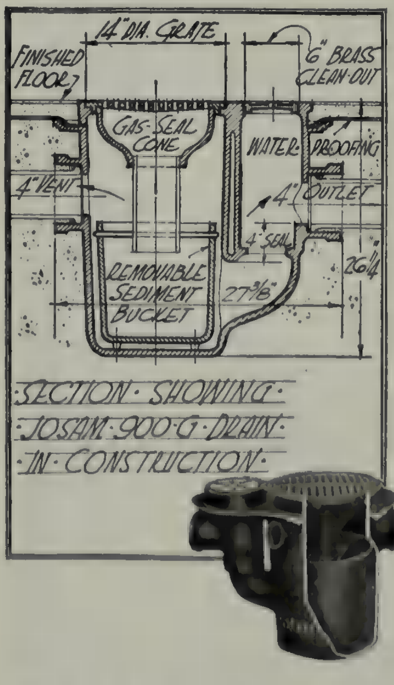

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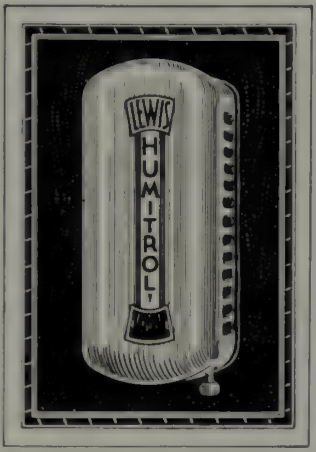

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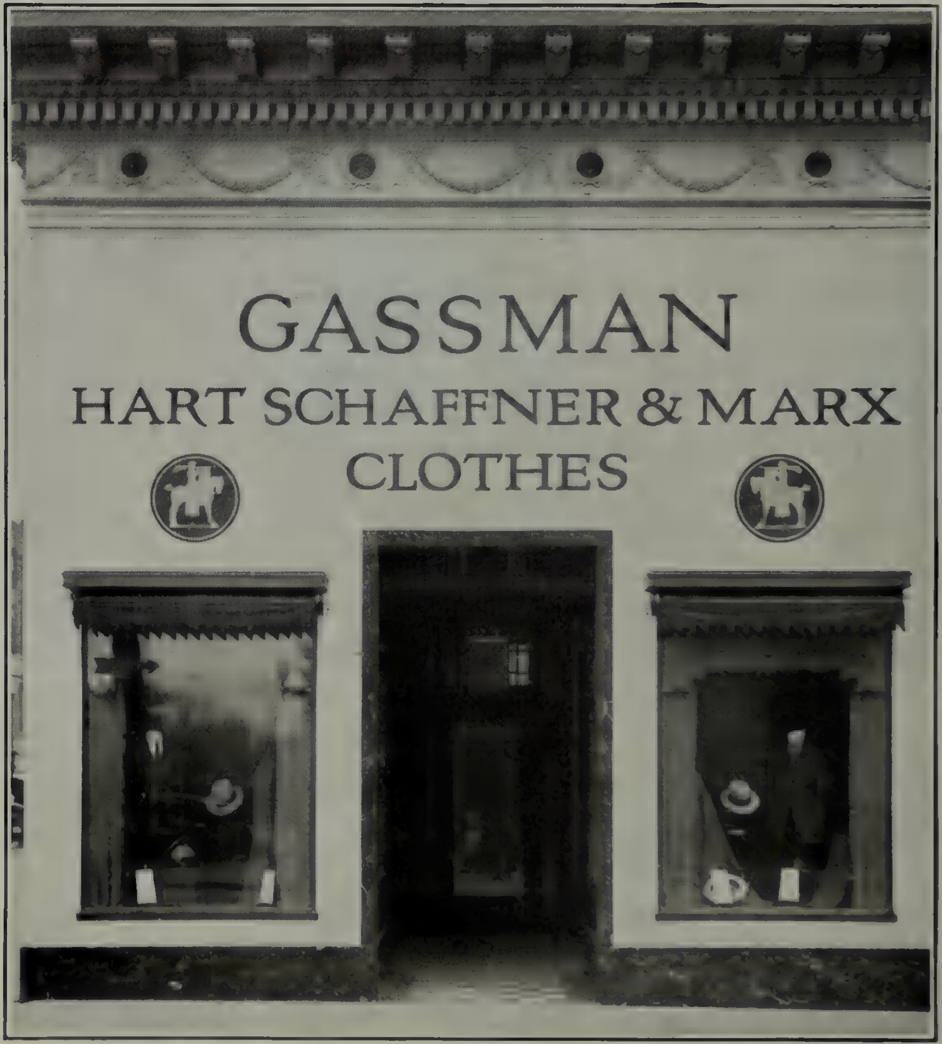

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ARCHITECTS are well aware of the fact that beautiful display windows are of practical advantage to stores. That is one of the reasons why Desco Store Fronts are becoming increasingly popular for constructions designed to attract trade through a handsome facade. Another reason for Desco Store Front acceptance is their durable quality. Another, the protection which Desco Store Fronts afford the glass against abnormal wind pressure. Made in a wide variety of finishes, they harmonize with any architectural style. Write for further information.

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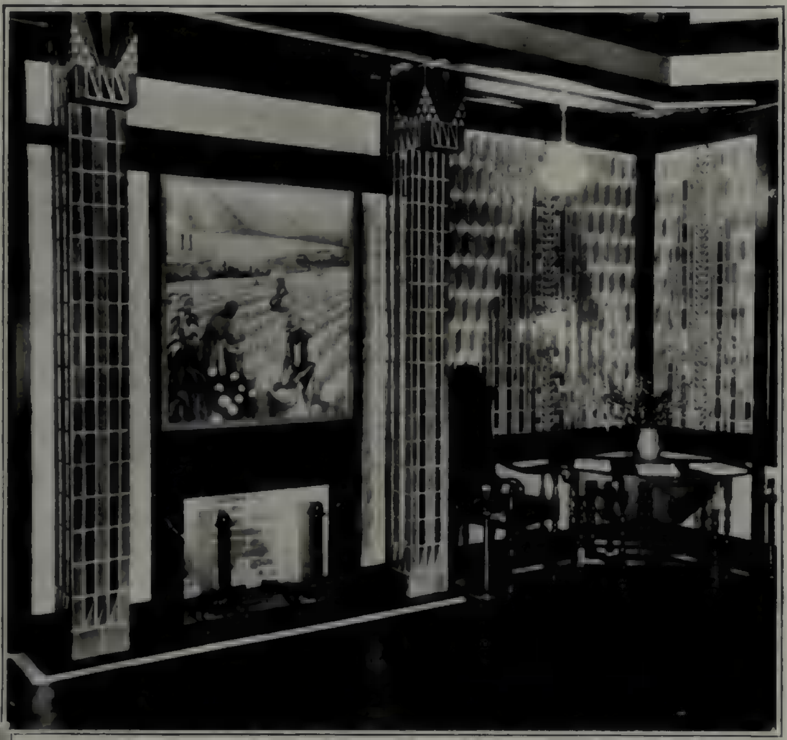

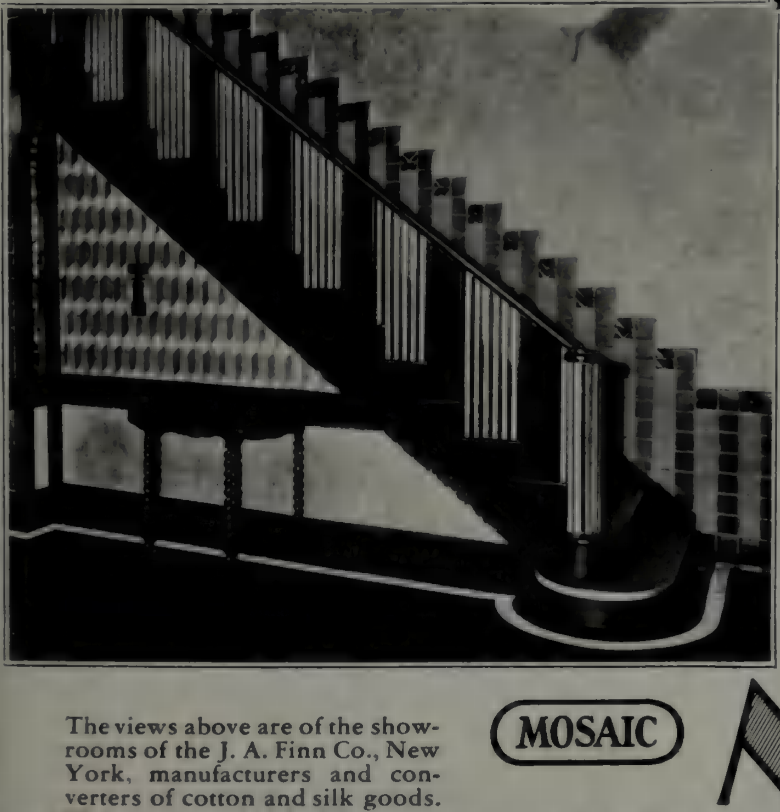

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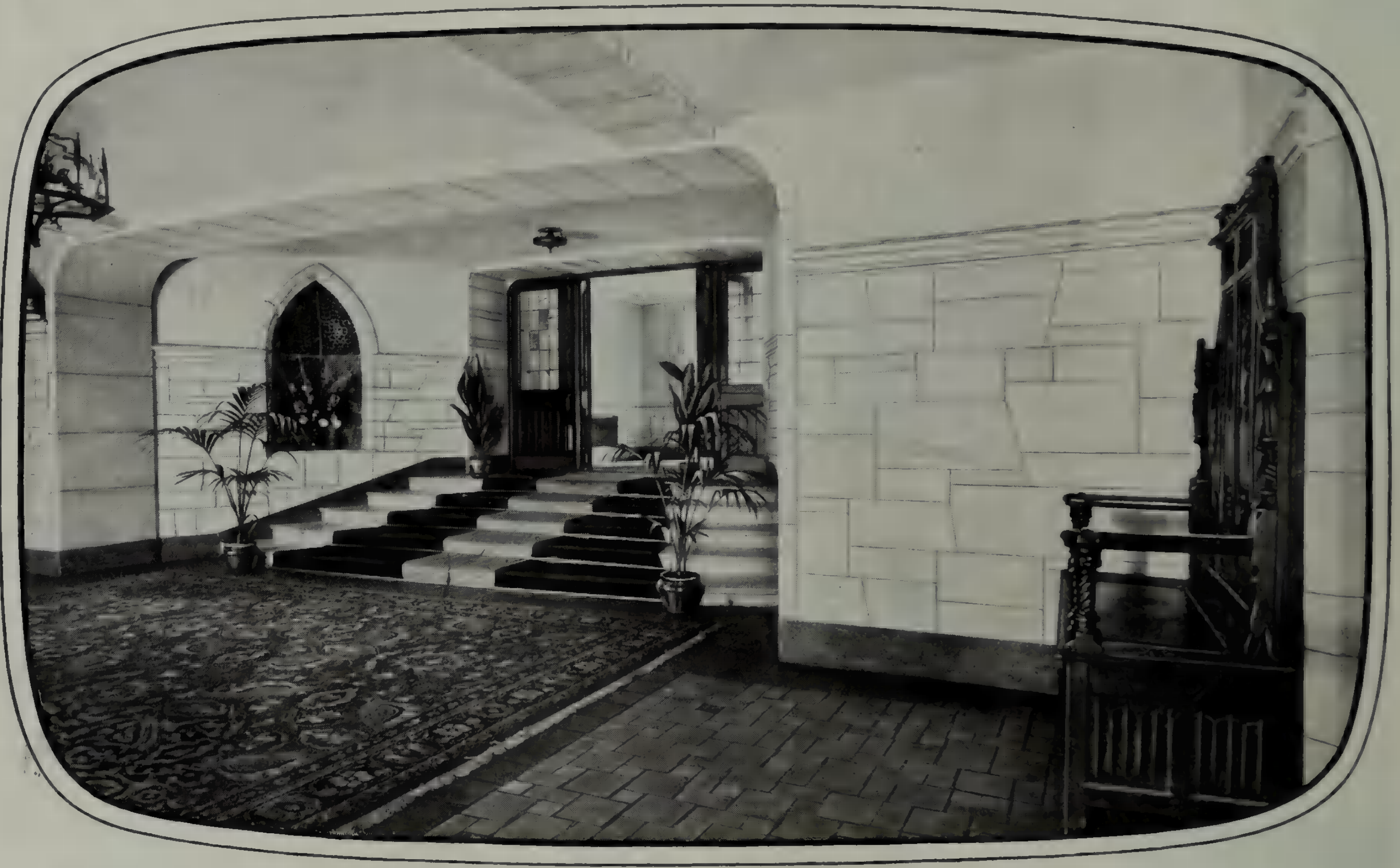

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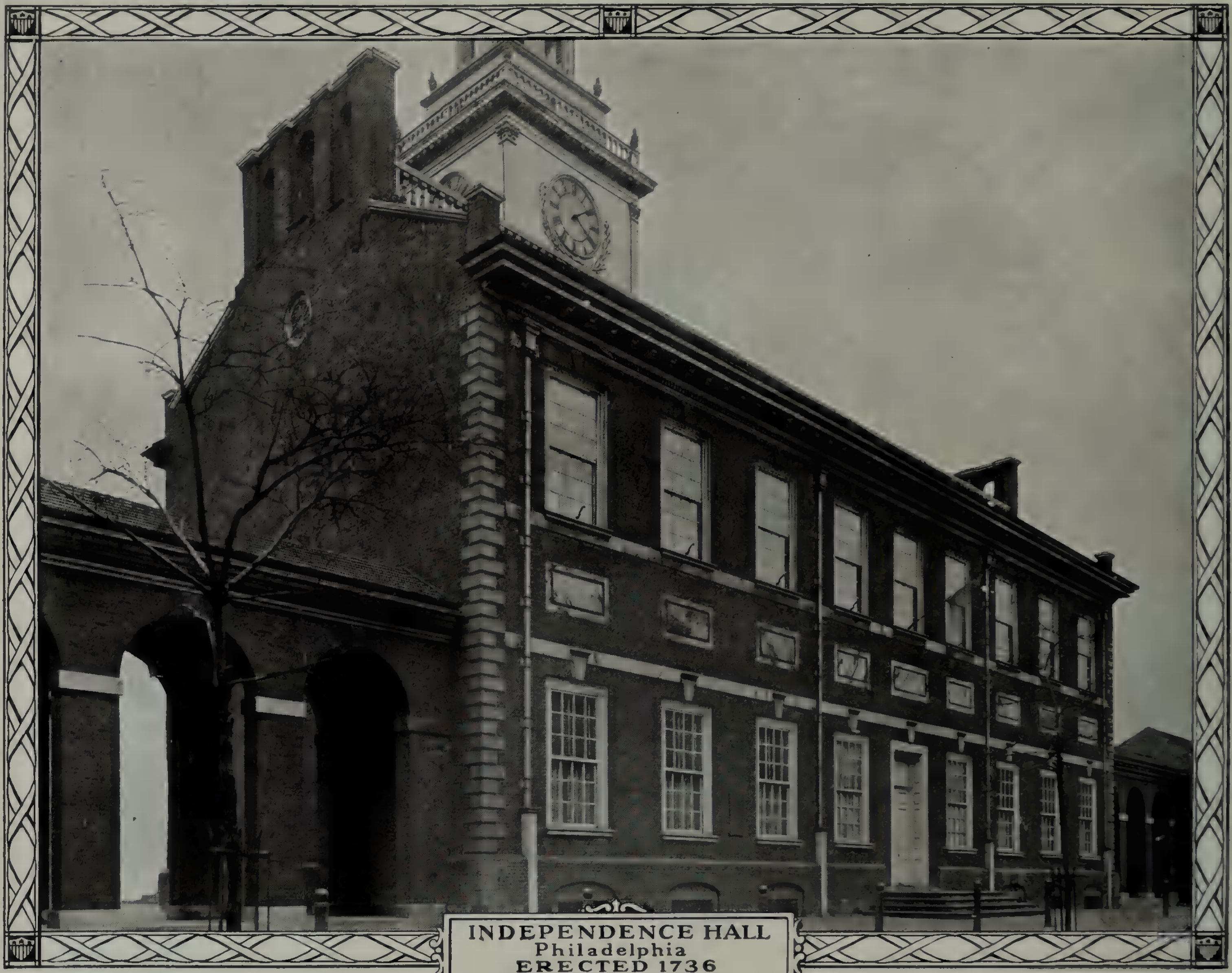

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THEY KNOW THAT ADJUSTABLE LOUVRES INSTALLED IN UPPER OR LOWER PANELS OF DOORS, AFFORDS **MAXIMUM** VENTILATION AT **MINIMUM** COST

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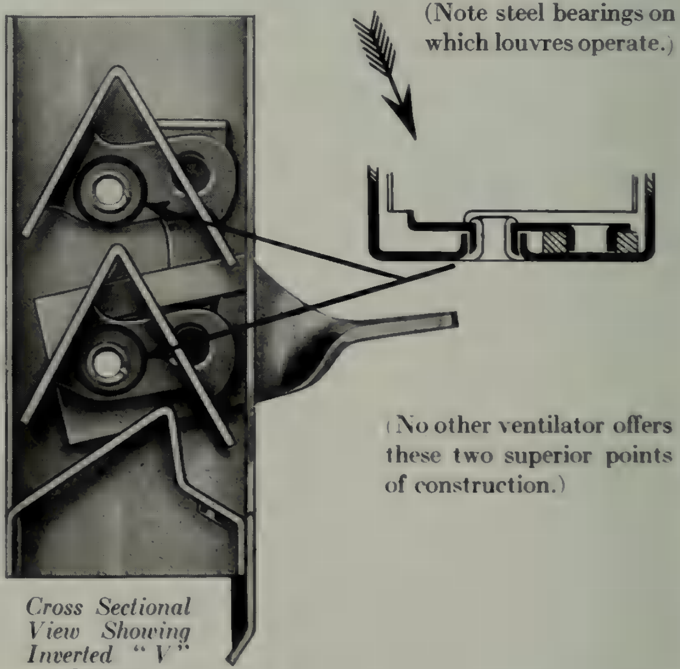

(Note steel bearings on which louvres operate.)

(No other ventilator offers these two superior points of construction.)

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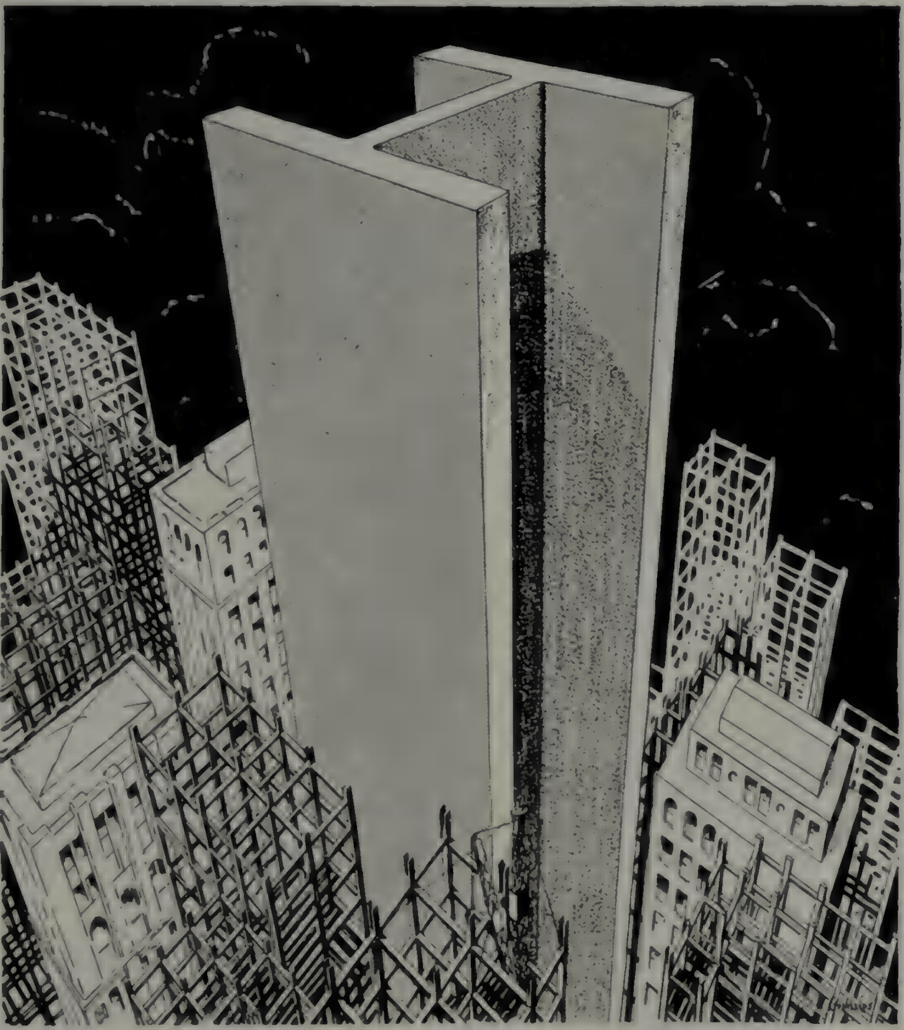

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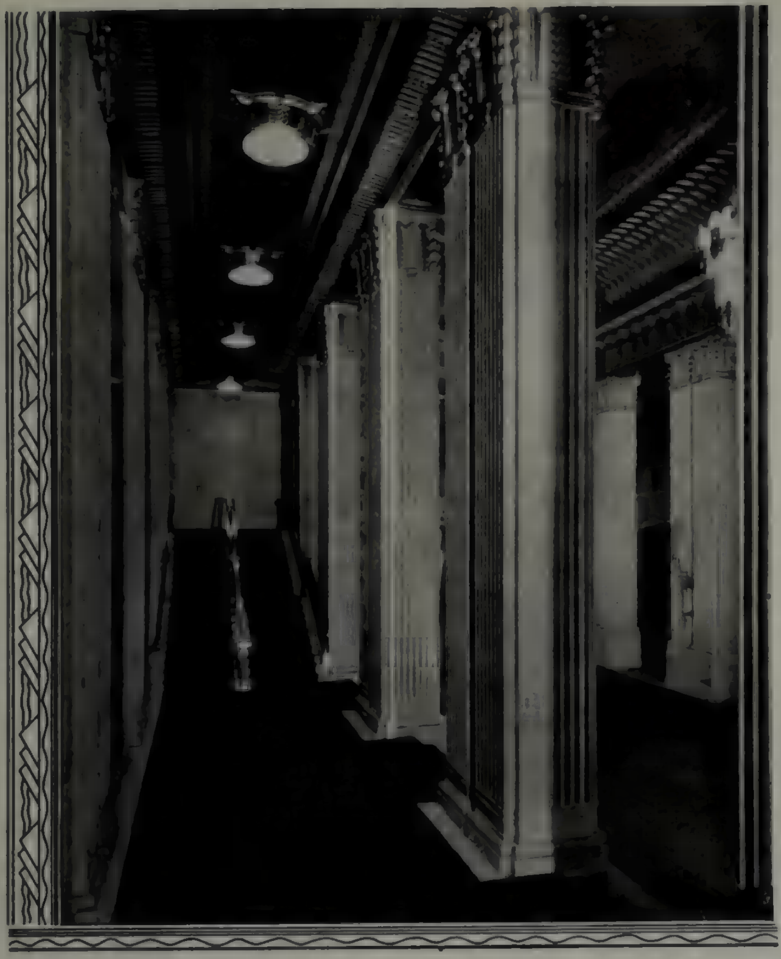

Lobby of new Civic Opera, Chicago. Graham, Anderson Probst & White Architects

This photograph is one of a series taken by the Chicago Architectural Photograph Company

The Civic Opera– An American Triumph

The Civic Opera of Chicago is recognized as one of the nation's monumental buildings. Like others of its class, it is finished largely in marble. Such structures require the natural beauty, the brightness and cleanliness, as well as the permanence of marble. Much of the stock came from our Imperial Danby and Champlain Black quarries. This was combined with Travertine and other foreign varieties. All was finished in our shops and set by our workmen.

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See Sweet's Catalogue for Specifications and other Data

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See Sweet's A112

The
ROBERT W. HUNT COMPANY
Engineers
INSPECTION . . TESTS
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ALL LARGE CITIES

1855 - SEVENTY-FIFTH ANNIVERSARY - 1930

THREE-QUARTERS OF A CENTURY'S EXPERIENCE IN THE PLANNING OF PLUMBING SYSTEMS BECOMES THE ARCHITECT'S WHEN HE USES

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PRODUCTS. NOR IS THEIR USE LIMITED. FOR EVERY TYPE OF BUILDING, CRANE FIXTURES, VALVES, AND FITTINGS ARE DESIGNED

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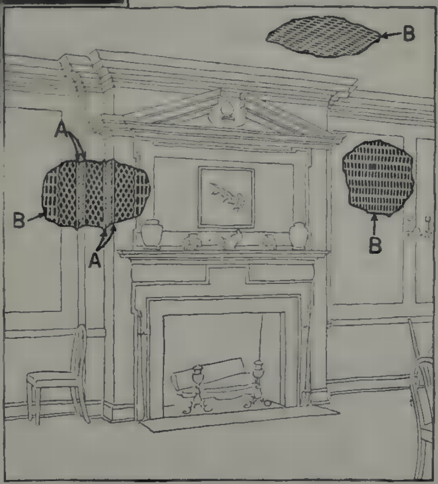
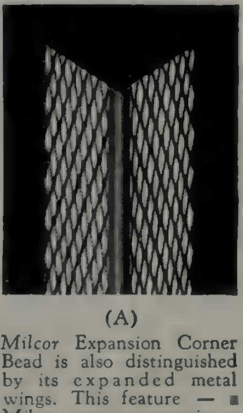


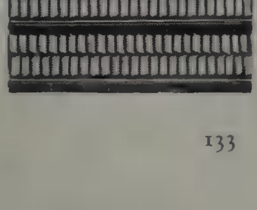
(B)

Milcor Stay-Rib Metal Lath is reinforced by longitudinal ribs of unusual strength. It has the rigidity and mesh design of an ideal plaster base, providing maximum protection against plaster cracks.



(A)

Milcor Expansion Corner Bead is also distinguished by its expanded metal wings. This feature — a Milcor patent — permits a perfect grip on the plaster and prevents chipping off due to unavoidable abuse.



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Represented in Sweet's—page C 3656

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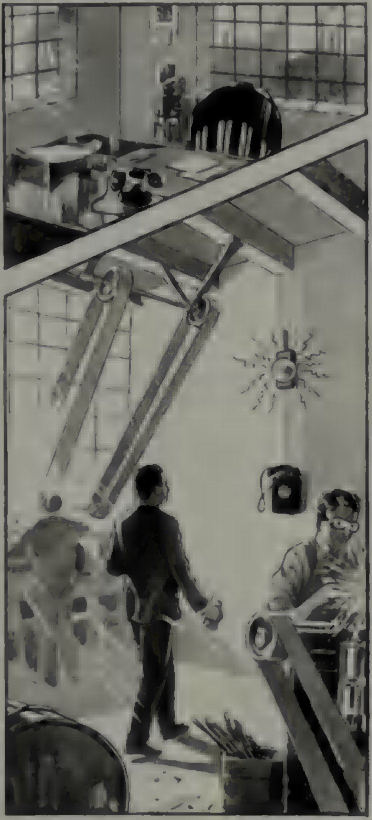

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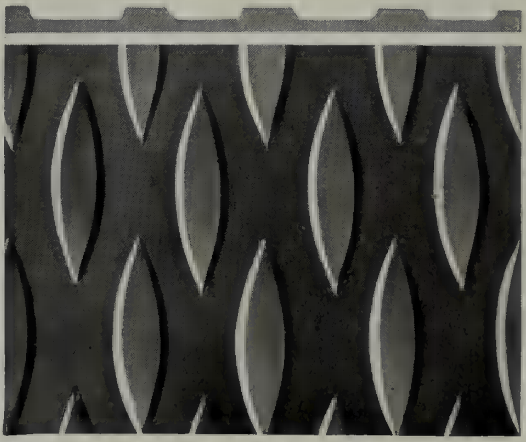
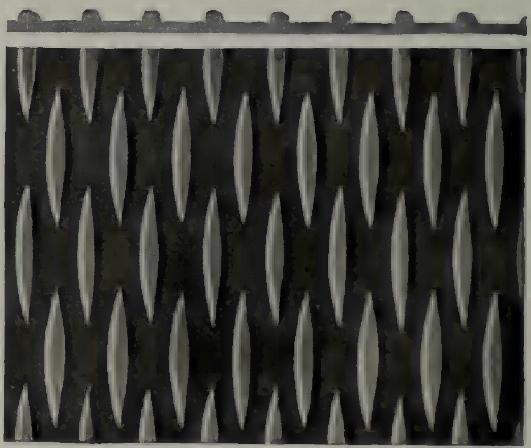


STANDARD "A.W." DIAMOND PATTERN
(one-half size)



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composed of carefully-spaced and properly-proportioned diamonds, oval in shape and raised from the surface of the plate, with the beveled edges of each diamond tapering off flush with the plate on all sides—

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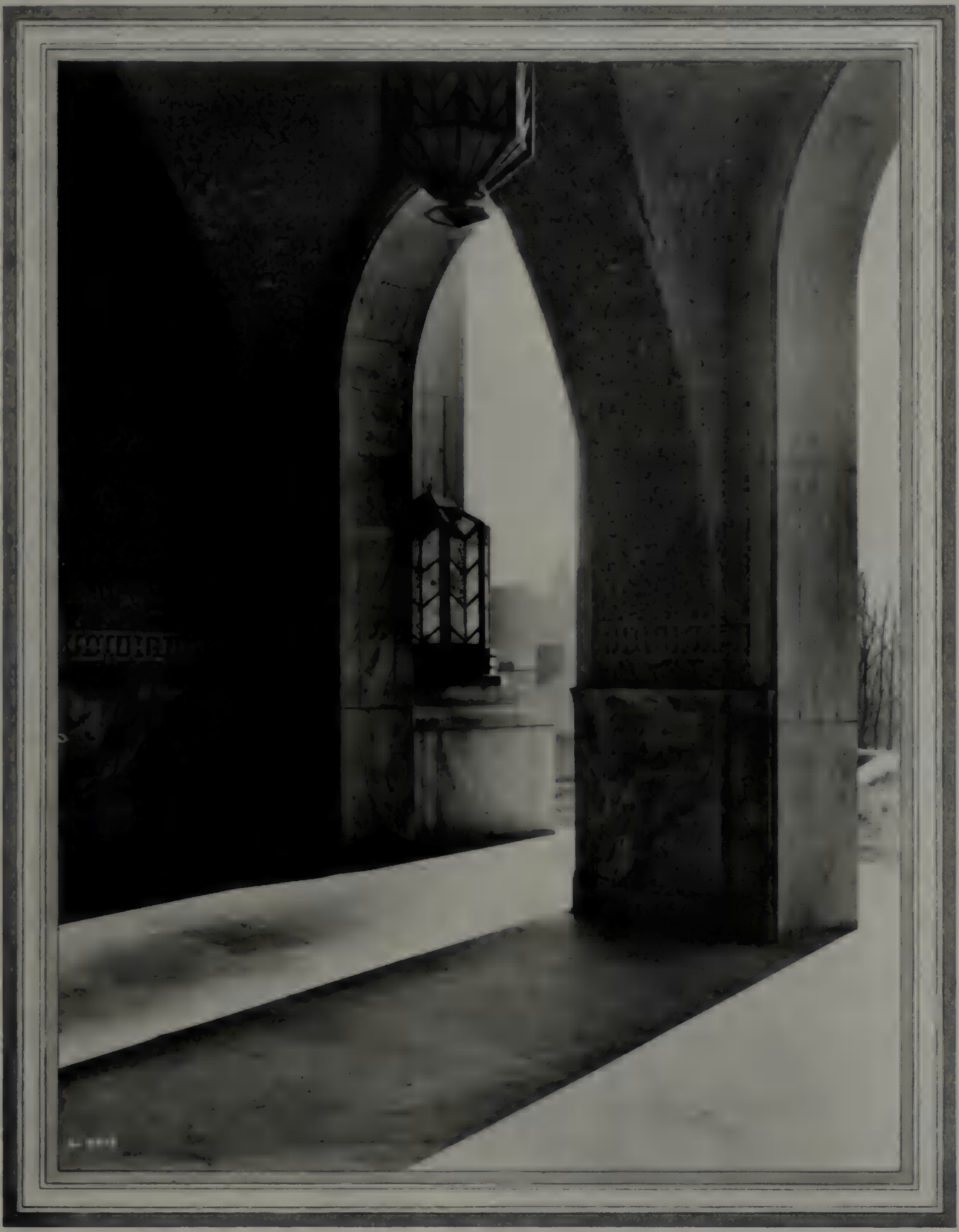

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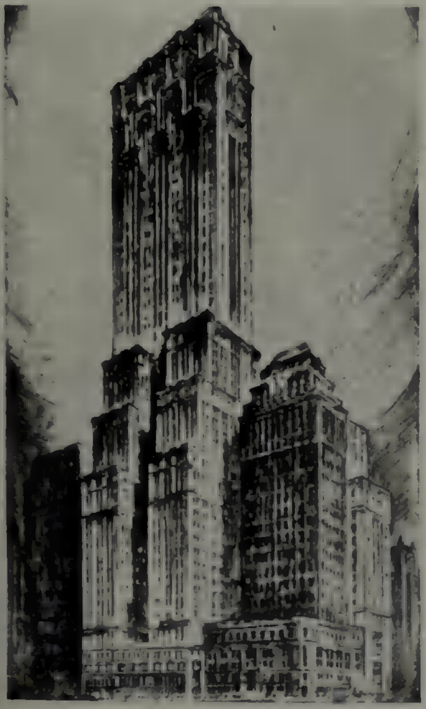

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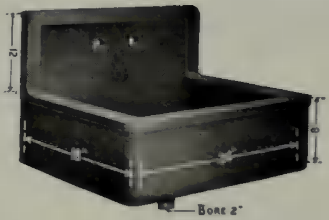

Figure 237
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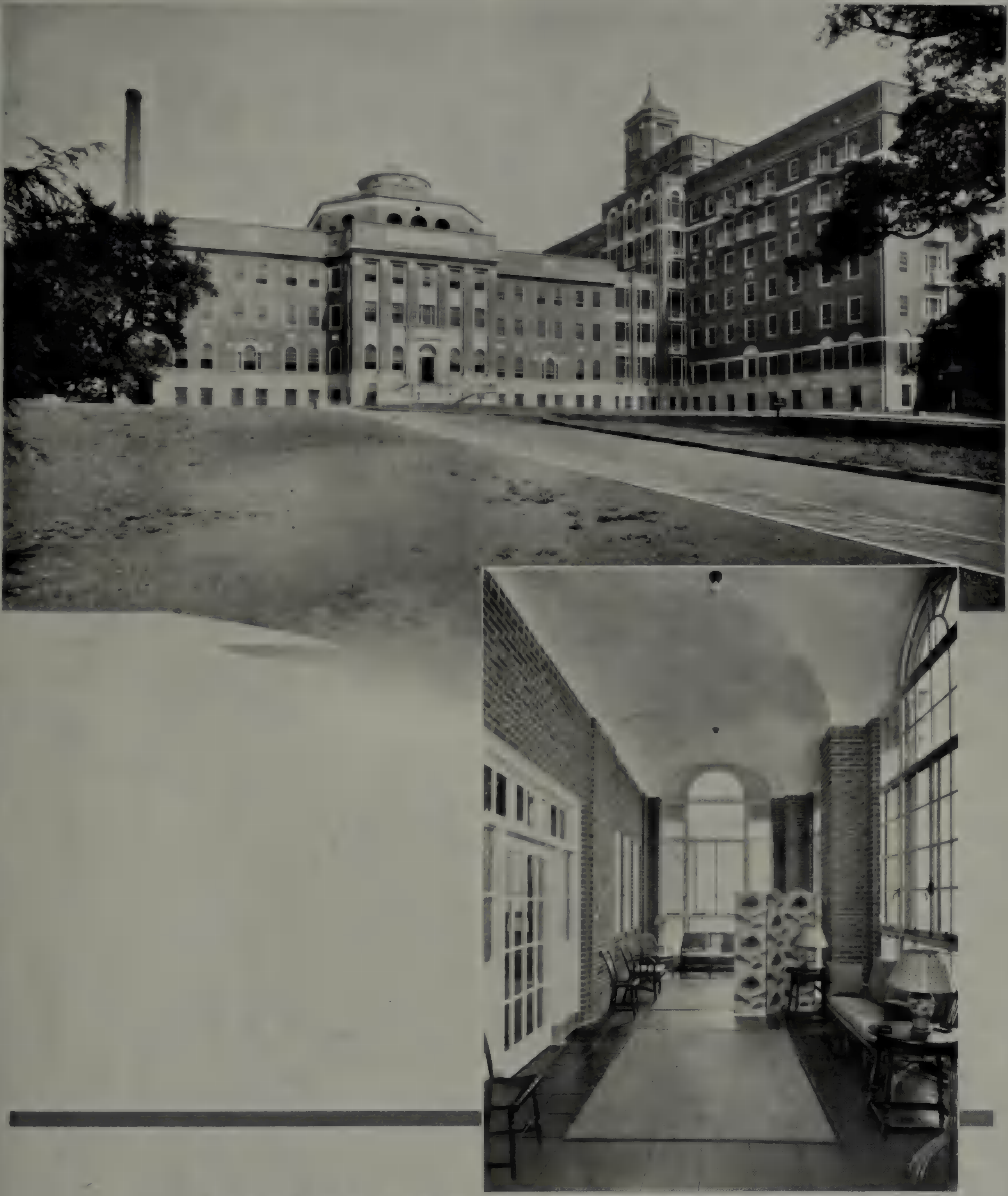

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Partition Tile
then it must be
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Alundum
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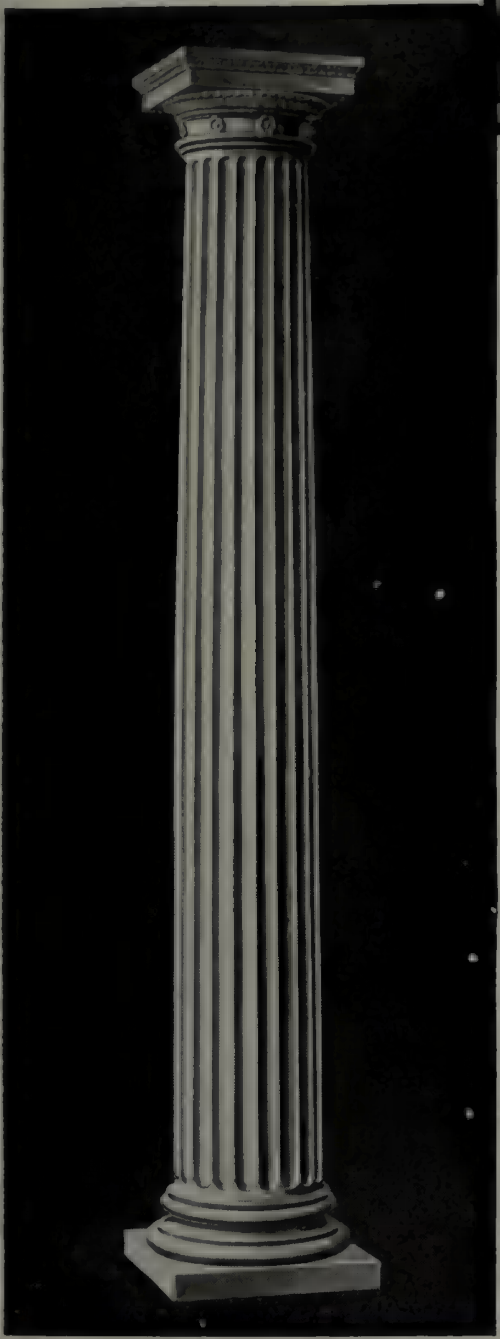

Union Metal Columns No. 224—Roman Doric. One of ten classical designs made in heights from 5′ to 35′ and in diameters from 8″ to 42″.

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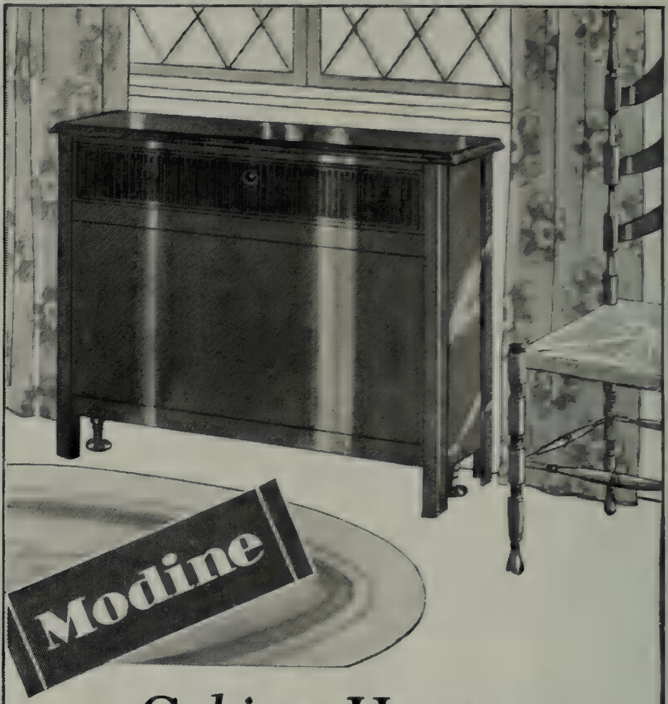

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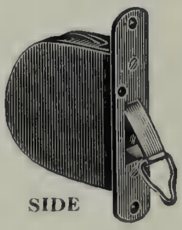
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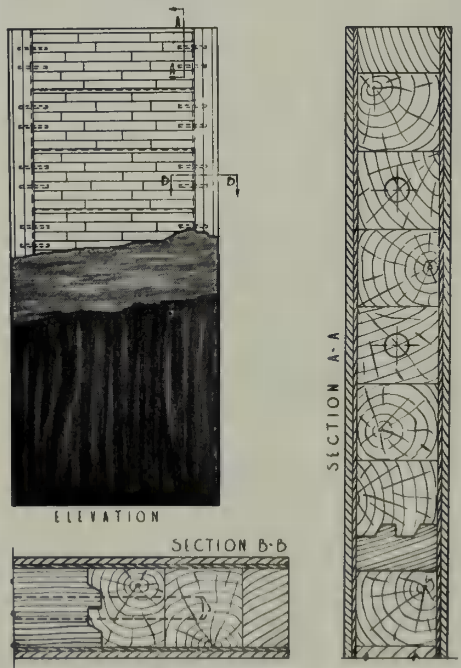

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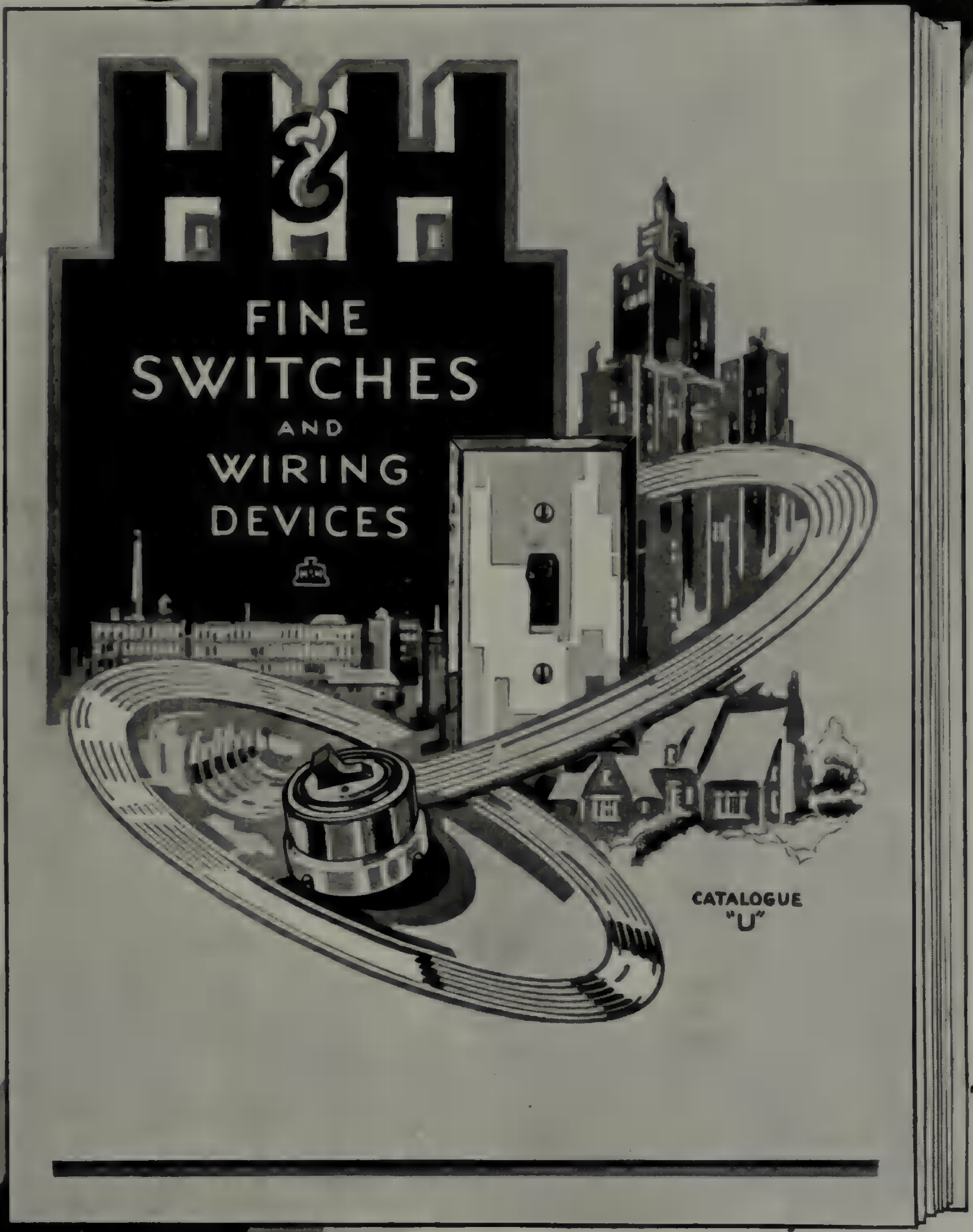
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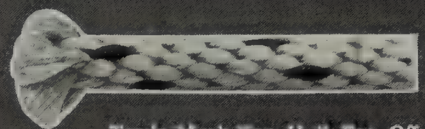

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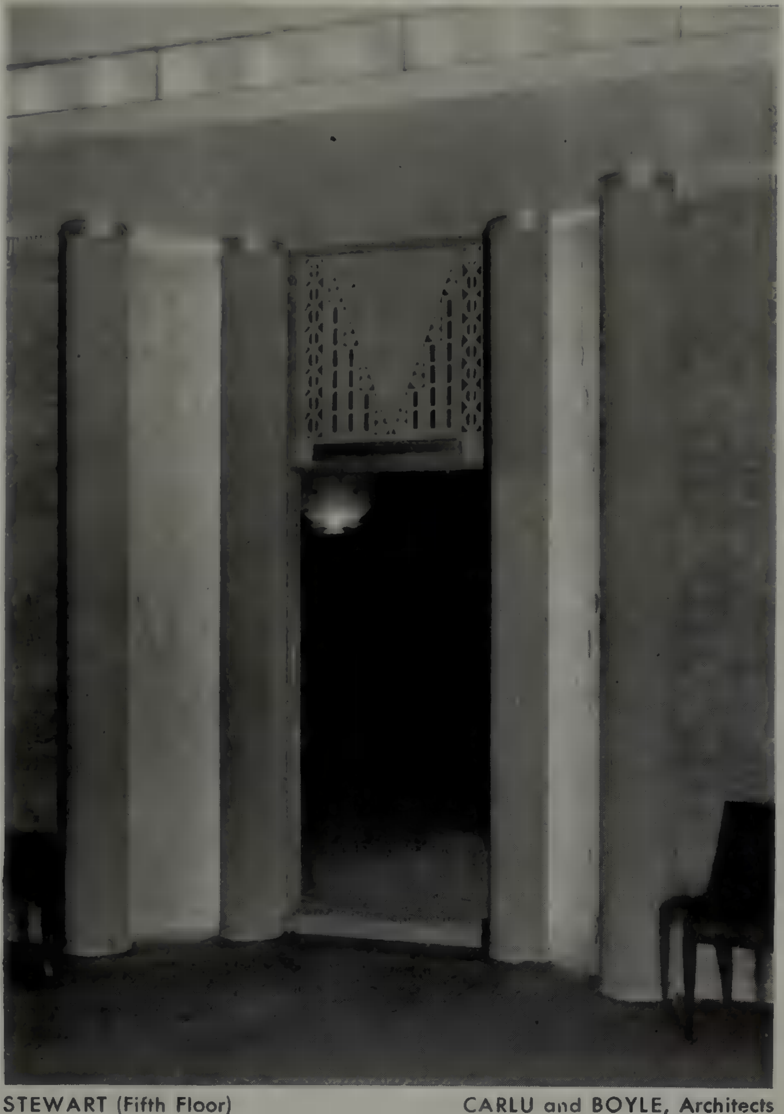

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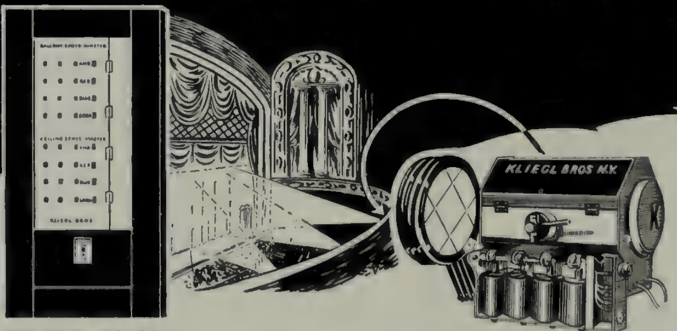
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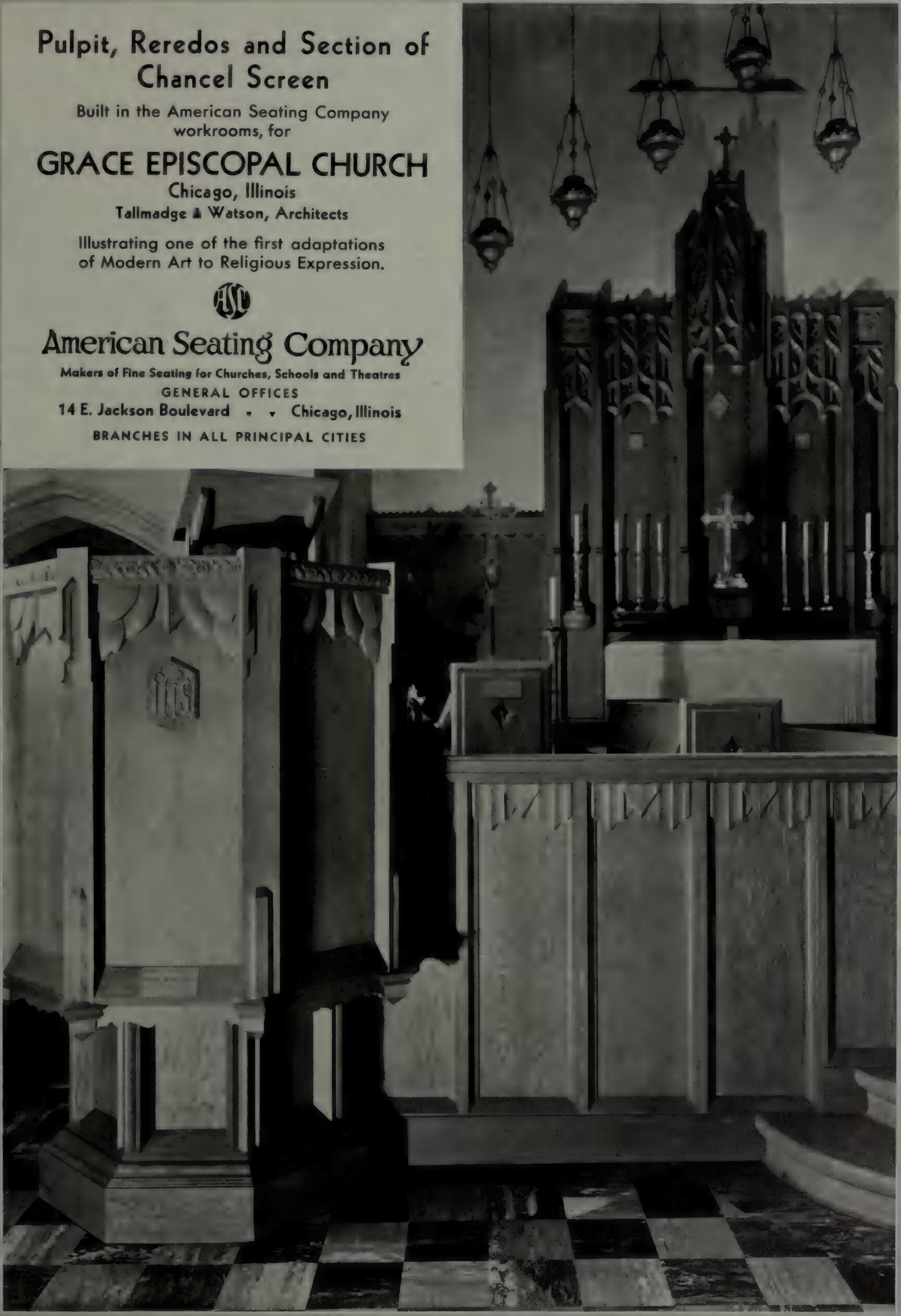

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BOOK REVIEWS

EARLY FLORENTINE ARCHITECTURE AND DECORATION

Edgar W. Anthony

Early Florentine Architecture and Decoration. XII, 109 pp., 82 plates. Harvard University Press. Cambridge, 1927.

Mr. Anthony's book is primarily an archaeological work and as such it is excellently if somewhat drily done. The extreme concision of statement and the somewhat special language are hardly added graces to the lay reader however much they may ease the way for the specialist to whom efficiency must necessarily be important.

For the architect there is an admirably full series of plates conveniently grouped at the back of the book. The richness of the illustrative material and the commodity of the make-up of the volume lead one to hope that at last American publishers are modelling their art books on the best foreign examples. But at least the section on the Florentine Baptistery, for which a fifth century date seems here made definite, and the more general introduction and conclusion of the text have great interest also; they display very clearly that the Renaissance was anything but an accident at Florence and that the conscious revival of antiquity played a very minor part.

The incrustation style begun presumably in the Baptistery on the analogy of late Roman work of eastern inspiration reached its apogee in the eleventh and twelfth centuries and in its great simplicity it compares very favorably with the richer color decoration of nearby Pisan territory. Moreover it suggests that in looking at the work of the greatest Florentine architect, Brunelleschi,—Michelangelo as an architect was a Roman,—less attention should be paid to his relation to the antique and more to his genius in individualizing and carrying on the local tradition. Rather than to seek his detail once so much admired despite its crudity it would lead us to look for his very skillful use of color in the simplest terms not to confuse but to underline, emphasize and crystallize the creations of interior space in which he joins the Byzantine.

The very small quantity which remains of the work which Mr. Anthony discusses should not blind us to its importance and its originality. It is a very great merit in the author to have chosen a field rigidly circumscribed which might be completely and even definitely covered. For the early Florentine, a style at once so little spread geographically and so restricted in its vocabulary, has yet been able to produce a few small buildings and parts of buildings which may stand with the greatest.

Henry-Russell Hitchcock, Jr

BUILDING CONSTRUCTION

Hool and Johnson

Handbook of Building Construction. Second Edition, 1929. New York: McGraw-Hill Book Co.

Like the first edition, published in 1920, the first volume covers the mathematical theory of structural design, members and details, structural data, including also data on what might be called the three-quarter inch and full size detail parts of a set of drawings and general designing data which have to do with needs and dimensions of parts of different types of buildings. The second volume covers contractors' methods and equipment, estimating, contracts, building materials, and mechanical equipment of buildings.

A possible purchaser wants to know first how much is *new* in a new edition. The new preface is three lines long and gives no worthwhile information. There are 1611 pages in the new edition, 136 more than in the old, 55 of these being additional reinforced concrete regulations. There are some changes in the associate editors and four more are added. A. R. Lord has revised the portion on reinforced concrete columns and flat slab construction, A. C. Hollinger that on footings and W. G. Bowman that on construction equipment. The section on building materials has been enlarged by 30 pages, on contracts by 10 pages and on elevators by 5 pages. There are about 625 pages on mathematical theory of structural design, about 190 on general designing data, about 120 on contractors' methods, equipment and estimating, about 170 on building materials, about 25 on architectural practice, contracts and specifications, and about 335 on mechanical equipment.

There is still too much space given to patented floor systems. Boston law roof loads which are more logical than most are given, but there is no discussion of the effect of partial loading on parallel-chord trusses carrying floors, nor of partial loading on balcony cantilevers, nor of the reversal of stresses in steep roof trusses due to wind, nor of the limitation of the use of equivalent vertical loading for roof trusses, nor of the importance of investigation of deflection in rafter and purlin design. The discussion of hammer-beam and A-trusses is inadequate, and there is no hint of the concealed construction in buttresses or concealed steel in the truss itself by which these much used types of trusses are now generally strengthened in practice. The wooden truss joints given, as is usual in books written by engineers, are much more complicated than those used by architects and carpenters in practice for moderate spans, and the reasons for some of these com-

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plications are not explained. Architects and builders also know that wooden framed buildings with trussed roofs of moderate spans are built in large numbers with simple easily framed joints and without any transverse bracing or bottom chord bracing and that failures are very few.

The relative advantages of wooden and concrete piles are not fully explained and the careless rule-of-thumb statement is made that plain concrete footings should have a depth of twice the projection without regard to the stress on the soil or the mix of the concrete. There is no mention of Carnegie beam sections nor of flame-cut I-beams used for wind-bracing connections, nor of the heavy steel grillage footings resting on rock or concrete instead of on soil. There are still some references to the 1917 report of the Joint Committee on reinforced concrete and some tables with non-standard rods, but in general the reinforced concrete discussion is brought up to date. There are new articles on steel joists and steel plate roof decking. The article on stone ashlar dressing and jointing should be amplified and brought up to date in the matter of nomenclature and machine work.

The wooden column formula of the Forest Products Laboratory is given but the safe load tables are based on an earlier government recommendation. There are a number of safe load tables for wooden joists but none giving spacing. The discussion of light wooden framing does not accord with New England practice.

The article on protection of structural steel from fire has been rewritten and enlarged but quotes more from the Chicago Building Law of 1911 than from Technical Paper 184 of the Bureau of Standards or from the Tentative Report of the Department of Commerce Building Code Committee on Recommended Minimum Requirements for Fire Resistance in Buildings. There are only three lines on oil and gas fuels. The editor on plumbing advises following the Recommended Minimum Requirements of the Department of Commerce Building Code Committee in the absence of local regulations.

Some typographical errors have been corrected but not all. The moment diagram on page 25 should have apices at the concentrated loads. Some statements are too inclusive as on page 386 that "all girders and joists entering masonry walls should rest upon steel or iron bearing plates." Some statements may be typographical errors as, for instance, on page 353, that "the proportions and consistency of this hardpan vary from mud to a natural concrete," or the statement on page 361 that "the best spacing for wooden piles under buildings is 3 feet center to center."

The index is now printed in Vol. 1, as well as in Vol. 2, which is a convenience.

Charles W. Killam,
Professor of Architecture,
Harvard University.

Fahrenkamp, Emil

Ein Auschmitt seines Schaffens aus den Jahren 1924-1927. Hoffmann; Stuttgart. 1928.

Fahrenkamp's designs for the palace of the League of Nations were probably the best of the German entries in this competition. It would be unfair to the experimental genius, to the potentialities of men such as Gropius and Mies van der Rohe, as well as to the greater and more individual achievement of such a man as Erich Mendelsohn to say that Fehrenkamp was the greatest contemporary German architect. To say that he is the typical German architect of the day might seem low praise; but considering the amount of building being done and its extraordinarily high excellence it is just and indicates the importance of this particular monograph among the quantities that are today appearing in Germany.

In the mass of his work the great skill of Fahrenkamp lies in his ability to give effects almost as rich and gay as those of the rococo Kaufmann with means which are extraordinarily simple. Of the higher architectural virtues of creating form, of finding "a *new analogue* of the beautiful" as Maritain says, of producing work calling for "new rules, of *viae certae et determinatae* hitherto untried and disconcerting to start with," there is not much in Fahrenkamp: one would hardly expect there would be in a man who is less an individual than the most characteristic example of a large group. Indeed it might seem as if in his factories of 1925-26, that period of the transition when the old and new elements were most evenly balanced, he had succeeded better than in his later and still partial attempts at a more complete adjustment to the newer manner.

The five color plates not only assist in the full interpretation of the uncolored photographs but suggest that with a little boldness and the greatest simplicity of means the use of color as the most effective way of bringing interior architecture up to date may have more desirable results than the production of stencilled kitchen cabinets and bath pottery in orchidaceous hues.

Henry Russell Hitchcock, Jr.

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From the records of F. W. Dodge Corporation, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent of the country's construction volume.

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	TOTAL CONTRACTS		WORK PLANNED BY ARCHITECTS		
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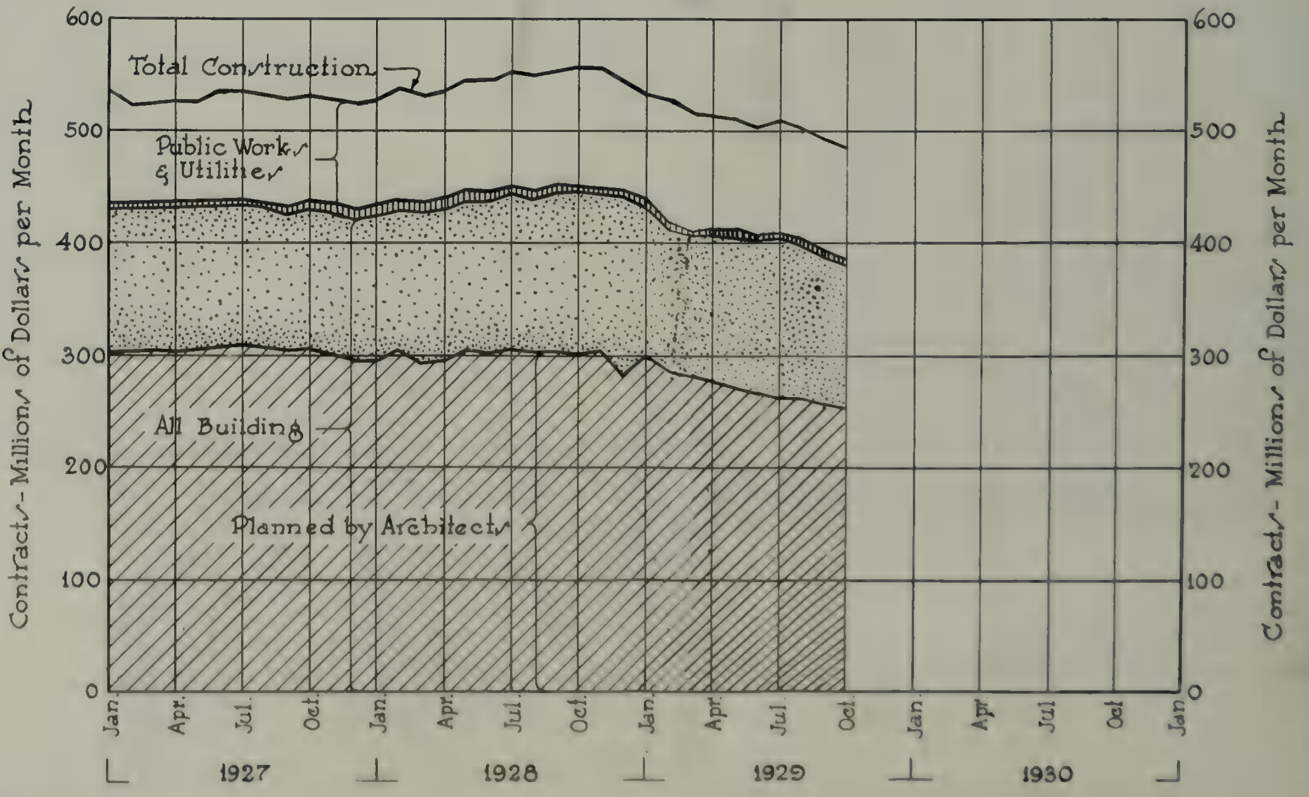
Industrial Buildings	5,747	649,446,100	2,027	168,254,200	26
Educational Buildings	4,122	336,364,400	3,319	321,734,300	96
Hospitals and Institutions	1,036	126,478,600	767	112,191,800	89
Public Buildings	1,181	108,113,900	674	99,499,400	92
Religious and Memorial	2,002	94,720,200	1,432	83,915,900	89
Social and Recreational	2,211	121,945,100	1,347	98,935,600	81
Residential Buildings	99,877	1,688,154,900	25,548	1,017,811,400	60
Total Building	137,199	$3,922,750,300	44,029	$2,507,196,900	64
Public Works and Utilities	17,209	1,124,159,600	308	31,997,000	3
Total Construction	154,408	$5,046,909,900	44,337	$2,539,193,900	50
Total Construction, first ten months, 1928	173,980	$5,724,047,600	52,028	$3,109,893,800	54

* * *



TO REMOVE SEEPAGE WATER

Select the pump that suits the particular conditions - - - Don't try to suit the conditions to a particular pump

COPPER AND BRONZE THROUGHOUT

№ 1E
$50 LIST

№ 2G
$70 LIST

№ 3 G
$100 LIST

№ 4G
$125 LIST

THIS suggestion is in the interest of satisfactory performance and economy in both the first cost and operation. The complete range of both electric and water operated pumps offered by Penberthy makes it possible for you to select a unit that will assure a well satisfied customer.

These Penberthy Pumps are carried in stock by leading jobbers everywhere. Sump Covers for all sizes are available at slightly additional cost.

MODEL R
NOS. 1 & 2
(WATER OPERATED)

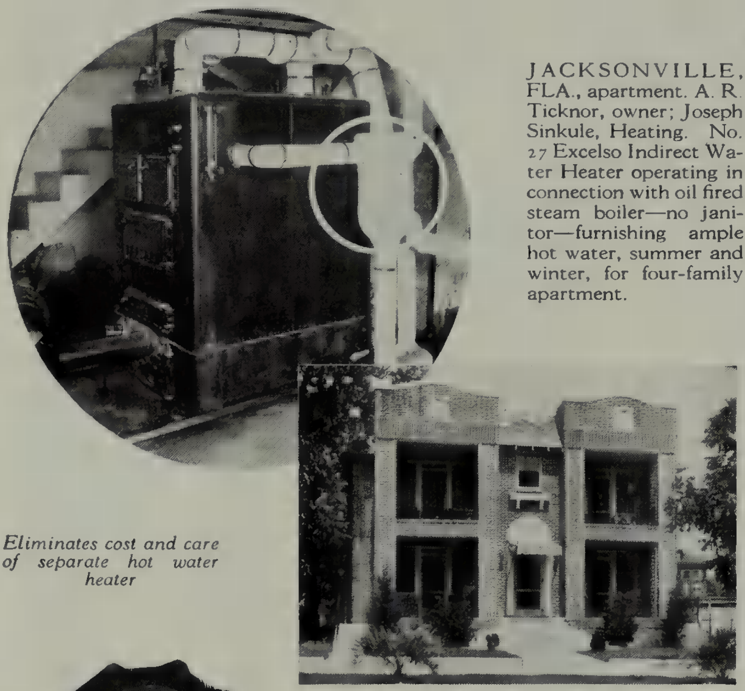
MODEL L
NOS. 3, 4, & 5
(WATER OPERATED)

PENBERTHY
INJECTOR COMPANY

ESTABLISHED IN 1886
DETROIT
CANADIAN PLANT, WINDSOR, ONTARIO

HOT WATER IN FLORIDA

Lowest Possible Cost Summer and Winter



JACKSONVILLE, FLA., apartment. A. R. Ticknor, owner; Joseph Sinkule, Heating. No. 27 Excelso Indirect Water Heater operating in connection with oil fired steam boiler—no janitor—furnishing ample hot water, summer and winter, for four-family apartment.

Eliminates cost and care of separate hot water heater

Open View Excelso Triple Copper Coil Heater

Excelso Indirect Water Heaters (Single, Double, Triple and Dual Coil types) have *removable* copper coils with patented ground joint brass connections, exclusively. There is no substitute for Excelso in design or efficiency.

EXCELSO Indirect Water Heaters operate automatically when connected up between your steam or vapor heating boilers and your water supply tank. In summer shut off the radiation and keep your boilers in better shape, maintain constant supply of hot water at lower cost than by other methods. Of course, you save duplicate installations for hot water supply.

Any good plumbing or heating contractor can install Excelso on your present heating equipment and save you money.

Catalog of typical installations on request.

Excelso Products Corporation

DIVISION OF AMERICAN RADIATOR COMPANY

67 Clyde Ave. Buffalo, N. Y.

Sold and Installed by Plumbing and Heating Contractors Everywhere

EXCELSO INDIRECT WATER HEATERS

SIZES TO SUPPLY HOT WATER FOR ONE FAMILY OR ONE HUNDRED FAMILIES

RECENT TRADE PUBLICATIONS

ISSUED BY MANUFACTURERS OF CONSTRUCTION MATERIALS AND EQUIPMENT

[These may be secured by architects on request direct from the firms that issue them, free of charge unless otherwise noted.]

CONCRETE

"Concrete Masonry in Outstanding Buildings." Store and office buildings. Hotels and apartments. Hospital buildings. Churches, temples, clubs. Schools, industrial buildings. Specific examples of use of concrete masonry in these types of structures for fire-proofing, partitions, exteriors, back-up, floors. Portland Cement Association, Chicago, Ill. 8½ x 11 in. 15 pp. Ill.

PLANNING FOOD SERVICE

"Practical Planning for Church Food Service." Relation of church kitchen design to architectural plan. Specific examples of church kitchens. A group of church and social center plans. The John Van Range Company, Division of Albert Pick-Barth, Inc., Chicago, Ill. 8½ x 11 in. 30 pp. Ill.

PLASTIC CEMENT

"Arco Sterlastic for Caulking, Pointing and Bedding." Specifications. Drawings. Description. The Arco Company, Cleveland, Ohio. 8¼ x 10⅝ in. 8 pp. Ill.

WINDOW GUARDS

"Steelcrete Frame Bar Window Guards." A. I. A. File No. 14b4. Catalog No. 126. Standard type panels. Guards for curved windows, arched openings, etc. Typical guards. Diamond mesh. Use of guards with skylights and railings. Specifications. The Consolidated Expanded Metal Companies, Steelcrete Building, Wheeling, W. Va. 8½ x 11 in. 14 pp. Ill.

STOKERS

"Green Chain Grate Stoker." Stoker Driving Mechanism. Pressure waterback and rear interior air seals reduce ash pit losses and increase efficiency. Side girders 7 inches below the grate surface and fuel bed to prevent overheating. Cooling plates opposite the ignition line. Chain skids acting as supporters for chain to prevent buckling and wavy motion. Double web chain for stokers more than 8 feet wide. Drawings showing applications of this stoker to various types of boilers. Tables showing three typical evaporative tests. 8¾ x 11¼ in. 26 pp. Ill. Combustion Engineering Corp., 200 Madison Ave., N. Y.

TILES

"Mosaic Tiles for Stores and Business Houses." Genuine Tiles made of clay hardened by intense heat. Extremely hard-backed. Practically everlasting. Impervious to water, stains or chemicals. Beauty of colors and styles. Wide selection of shapes and sizes. Ideal for restaurants, business houses, banks and financial houses. 8½ x 11 in. 12 pp.

"All Tile Bath Room Accessories." Drawings with sizes and catalog numbers of numerous bathroom accessories, including toothbrush and tumbler holders, electrical accessories, soap holders, grill tiles, paper holders, towel and robe hooks, towel bars and shelves, duplex holders, door stops. 8½ x 10½ in. 7 pp. Ill. The Mosaic Tile Co., Zanesville, Ohio.

(Continued on page 164)

The Invisible Superintendent at the Mortar Box *makes a mortar that meets* ALL *requirements*

ONE PART BRIXMENT, three parts sand (no lime, no portland) makes a mortar that has the necessary strength and plasticity and many other advantages as well:

So hard that a nail cannot be driven into the joint . . . Sets up even under water . . . Repels moisture . . . Does not cause efflorescence or fade colors . . . Uniform in strength and color . . . Makes neater brickwork due to convenient setting time and smooth-working qualities . . . Reduces cost of materials . . . Less labor in mixing (no soaking or slaking). . . Saves bricklayer's time because of unusual plasticity . . . Especially good for winter work.

Architect's handbook on request. Louisville Cement Company, *Incorporated,* Louisville, Ky.

District Sales Offices: 1610 Builders Bldg., *Chicago;* 301 Rose Bldg., *Cleveland;* 602 Murphy Bldg., *Detroit;* 101 Park Ave., *New York*

BRIXMENT

for Mortar and Stucco

And the Steam Lines can be there when the Building is done

Ric-wiL Type F with Dry-paC Waterproof Insulation packed around pipes. Fully closed construction

WINTER weather does not stop the installation of Ric-wiL Conduit. If the trenches can be dug, the rest of the job follows through easily.

By the time the new building is enclosed the steam can be ready to turn on, the pipes safe underground in Ric-wiL Conduit. And the same efficiency results as in summer installations.

There's no concrete work to be held up by zero weather; only the joints require cementing. And with Dry-paC waterproof insulation there is no danger from moisture.

This is only one of the many advantages of Ric-wiL—the conduit that pays its users a bonus each winter through extra savings due to unusual efficiency.

Our annual District Heating Rates Bulletin is nearly ready for issue. May we send you a copy?

THE RIC-WIL COMPANY
1566 Union Trust Building · Cleveland
New York . Boston . Baltimore . Atlanta . Chicago

RIC WIL
UNDERGROUND CONDUIT

RECENT TRADE PUBLICATIONS—(Continued)

ELECTRIC HEATING

"Electric Heat in Industry." Industrial advantages of electric heat; metal industry, the ceramic industry, chemical, printing, food, finishing processes. Miscellaneous applications. Specific installations. General Electric Company, Schenectady, N. Y. 11¾ x 8 in. 48 pp. Ill.

METAL GRILLES

"Perforated and Cast Grilles." Perforated Metal Grilles of bronze, brass, steel, copper, nickel, zinc. Monel metal, aluminum and special alloy sheets. Process of manufacture, finishes. Stock designs, designs to order. Drawings of different designs for numerous types of grilles. Table of dimensions for various size units. The Newman Manufacturing Co., Cincinnati, Ohio. 10 x 7¾ in. 40 pp. Ill.

TERRA COTTA

"Abbochrome, A New Development." Combination of two or more harmonious colors shaded and merged together. Warmth and depth of tone. Adaptable for base colors in architectural polychromy. Plates showing noted examples of its use. Atlantic Terra Cotta Co., 19 West 44th St., New York, 21 pp. Ill.

ENAMEL

"Marvelwite 'T' Chemical Enamel." White acid and fume resisting coating. Specifications. Three coat work. Woodwork and wall board. Iron, steel and metal work. Repainting oil painted surfaces. Over old cold water paint or whitewash. List of products. L. Sonneborn Sons, Inc., 114 Fifth Ave., New York, N. Y. 8½ x 11 in. 2 page folder. Ill.

UNIT VENTILATING AND HEATING

"The Peervent Heating and Ventilating Unit." Advantages: independent service for each room, ample flexibility for changes in weather conditions, quiet operation, elimination of drafts. Mechanical features: fan housings, fresh air and recirculation damper, mixing damper, alternating current motors. Peer Therm fresh air damper. Vent flues and grilles, galvanized iron wall boxes with stationary louvres and screens. Radiator with new feature which prevents loss of efficiency in the transfer of heat from tube to fin. Heating capacities. Engineering data. Layouts. The Peervent Heating and Ventilating Unit, Bridgeport, Conn. 8½ x 10½ in. 29 pp. Ill.

ELECTRIC SINK

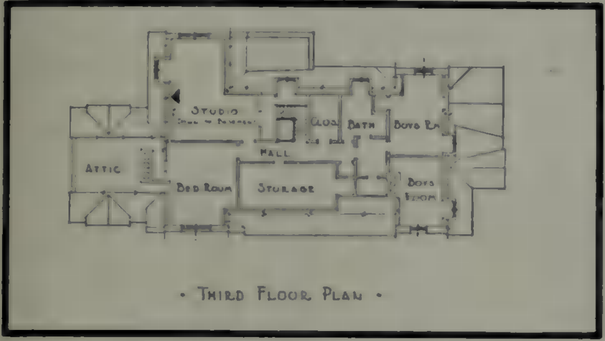
"Let the Kohler Electric Sink Wash the Dishes." Water shooting from central tube floods dishes with equivalent of 300 gallons of water. Dishes do not revolve or turn. Duostrainer-equipped sink. Chromium plated cover used for drain board. Fixtures of flint-gloss enamel immune to fruit or vegetable acids. Specific installations of various styles and combinations. Folder, 3½ x 6¼ in.

"K. of K. Hygienic Closet Seats." Concealed heavy brass hinge. Check flange prevents seat and cover from striking wall. Reinforcements of two strong metal bars extended from hingeplate through the cover. Sheet covering to prevent cracking. Available in colors, plain, or sea pearl. Finish with Dynamic hinges. Kohler of Kohler, Wisc. Folders, 3½ x 6¼ in.

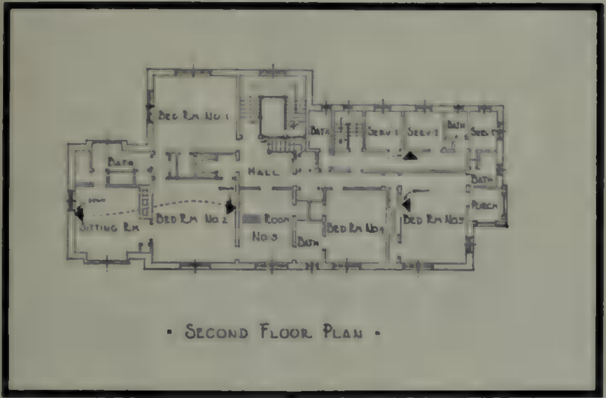
(Continued [illegible] page 166)

★

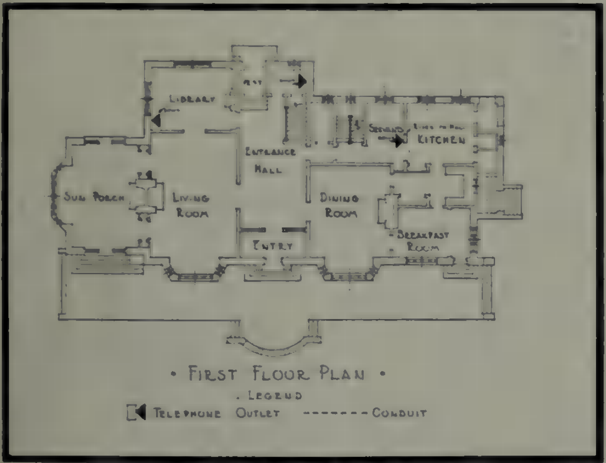
New Beauty and Smartness—with Modern Telephone Convenience



• Third Floor Plan •



• Second Floor Plan •



• First Floor Plan •

. Legend

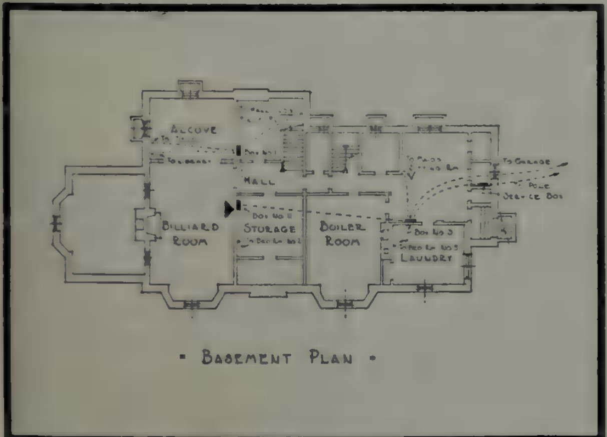
◀ Telephone Outlet ------- Conduit

In the residence of Mr. Philip N. Lawes, 56 Highland Avenue, Montclair, N. J., there are ten telephone outlets, including one in the garage and one in the basement. Conduit built into the walls and floors conceals the telephone wiring.
W. Leslie Walker, Architect, *New York City.*

A feature of modern telephone convenience which is of particular interest to architects is that it adds to the *appearance* of a house, as well as providing greater convenience and comfort for the occupants. Telephones today are not only an indispensable means of communication, they have become a part of home decoration. Planning for the telephone arrangements in advance of construction makes it possible to utilize modern facilities to full advantage.

Conduits are placed within the walls to all points where telephone service may be desired immediately or in the future, avoiding the necessity of exposed wiring at any time. Underground service entrances conceal the wires coming from the outside. Attractive wall niches or cabinets for instruments and directories are constructed in some instances, especially where space is limited. Many other things contribute to utility and smartness.

It is desirable that architects consult freely with representatives of the telephone company in planning for telephone convenience in new or remodeled houses. No charge is made for this service. Just call the Business Office.



• Basement Plan •

American Telephone & Telegraph Co. and Associated Companies
BELL SYSTEM

...DRINKING FOUNTAIN SPECIALISTS...

Architects are not experimenting

when they specify CENTURY FOUNTAINS

Architects are learning that they can eliminate "or equal" from their drinking fountain specifications. Those who have carefully compared drinking fountains . . . and based their comparisons on FACTS . . . have learned that there is a difference in drinking fountains, even among the modern automatic-stream-control types. These architects simply specify that all drinking fountain equipment must be CENTURY. In so specifying they are not experimenting . . . they *know* that their judgment and faith are based on the actual performance of the fountain, and not on mere opinion.

The bubbler head is the important part of any drinking fountain . . . and the CENTURY *Automatic* Bubbler Head controls the height of the stream with greater efficiency than any other bubbler head in use, and *without waste of water.*

We shall be glad to send any architect a chart of a recent test showing the comparative efficiency of the bubbler heads used by the leading drinking fountain manufacturers. Every architect should also have the CENTURY catalog which gives complete specifications on No. D-44 illustrated above, and other attractive fountains. It is designed for A. I. A. files.

CENTURY BRASS WORKS, INC.

902 N. Illinois St. **Belleville, Illinois**

Century SANITARY DRINKING Fountains

RECENT TRADE PUBLICATIONS—(Continued)

SPRINKLING SYSTEMS

"How to Plan and Install Thompson Concealed Lawn Sprinkling Systems." Method of installation. Control valves. Sprinkler heads. How to apportion sections. Tables. Specifications. Layouts. The Thompson Mfg. Co., 2251 East 7th Street, Los Angeles, Calif. 8½ x 11 in. 16 pp. Ill.

LIGHTING EQUIPMENT

"Guth Lighting Equipment." Catalogue 240. A. I. A. File 31 F. 23. Brascolite. Noshadolite. Aglite fixtures made in shaded tints. Numerous examples of lighting equipment from plain lights for business purposes to artistic installations with brass and iron fixtures, ebony and old gold finish. Cast bronze wall plate with radiant glass ball. Clinic lights for hospital purposes. Lights for directional signs. Wire guards. Guth mechanical fan which circulates air but not dust. Porcelain enamel switch plates. The Edwin F. Guth Co., St. Louis, Mo. 8½ x 11 in. 37 pp. Ill.

STEEL PRODUCTS

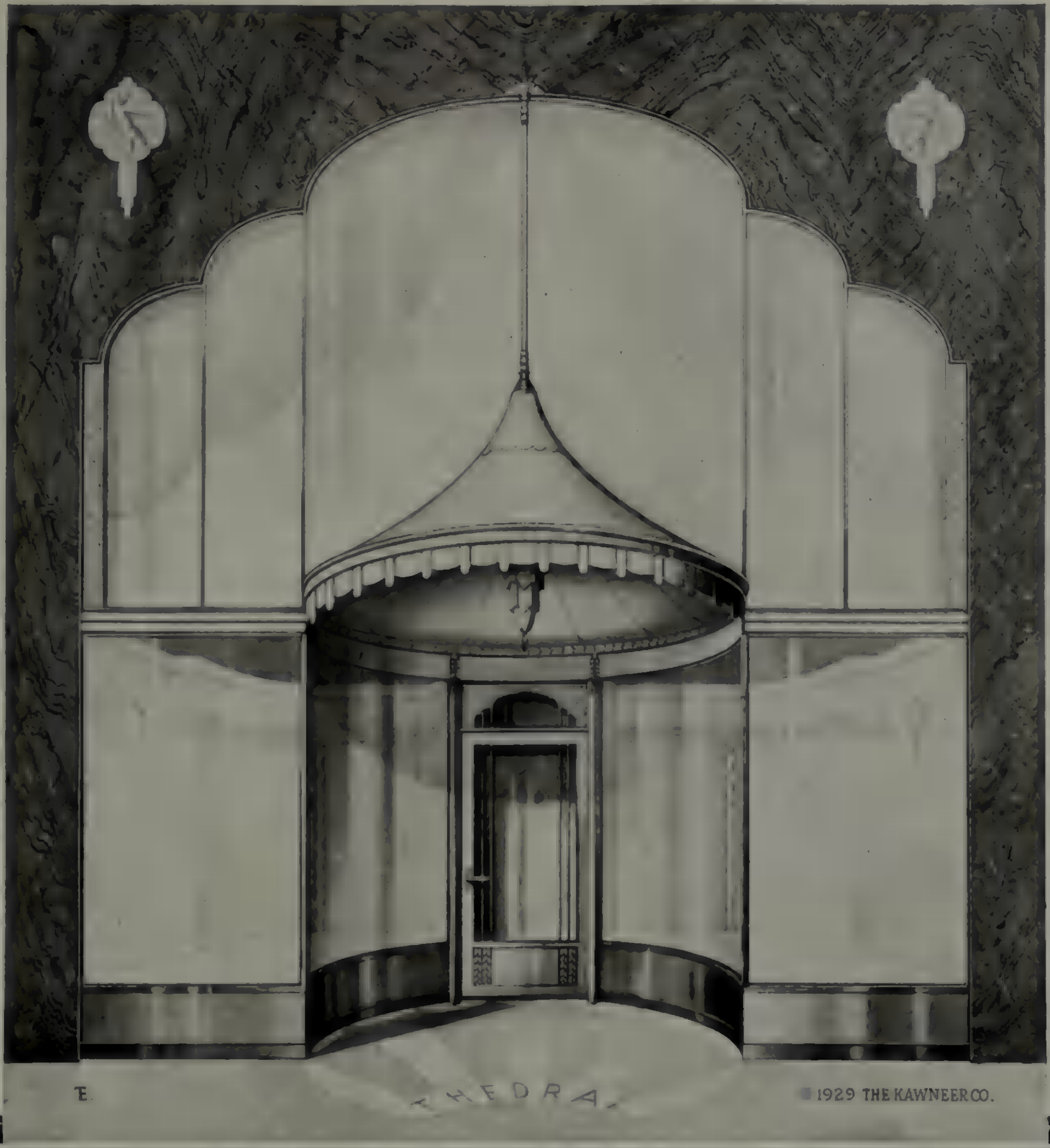
"Products & Publications of the Subsidiary Manufacturing Companies of the United States Steel Corp." Products and By-Products manufactured. Location and addresses of sales offices, location and addresses of warehouses, publications descriptive of products. Description of Educational Motion Pictures. Alphabetical index of products. 11 x 8½ in. 51 pp. Ill. United States Steel Products Co., 30 Church Street, New York, N. Y.

REINFORCING WALLS

"Better Walls for Better Homes." Steeltex. Reinforces plaster. Damp proofs and insulates. Examples of homes in which the new ribbed steeltex was used. V-shaped rib stiffeners. Heavy pure fibrous backing. Cold drawn steel wire mesh. Detailed specifications of lathing for plaster. Steeltex job automatically back-plastered. Eliminates use of "keys." Steeltex as base for stucco. Brick and stone facing. Used in connection with steel frame residence construction. Steeltex attachment bars. National reinforcing for corners and joints. National Steel Fabric Co., 902 Union Trust Building, Pittsburgh, Pa. 8¼ x 10 in. 23 pp. Ill.

INSULATION

"Our Home." J. M. Insulating Board. Made of spruce fibres, containing millions of dead air cells. Homogeneous board, not laminated and can be cut, sawed and nailed like wood. Each fibre thoroughly impregnated with a waterproofing agent. Used under wood siding, shingles, stucco, brick, veneer and roofs. Advantages. Illustrations. The Johns-Manville Corp., 292 Madison Ave., New York, N. Y. 8½ x 11 in. 24 pp. Ill.



Kawneer

STORE FRONTS

in

Bronze, Chromium Nickel Aluminum Alloy and Copper

For excellence of workmanship, true reproduction of design and sound construction we advocate the fabrication of store fronts at our factory. A corps of skilled workmen trained by an institution with twenty-five years' experience in store front building is your assurance of satisfaction. Below is shown an ensemble of "B" Construction which is now available in the metals mentioned above. Send for Circular on "B" Construction and Full Size Details.

SEE OUR EXHIBIT AT ARCHT'S SAMPLE CORP., NEW YORK CITY

THE
Kawneer
COMPANY
NILES, MICHIGAN BERKELEY, CALIFORNIA

SEE OUR CATALOG IN THE 1930 SWEET'S

BRANCH OFFICES

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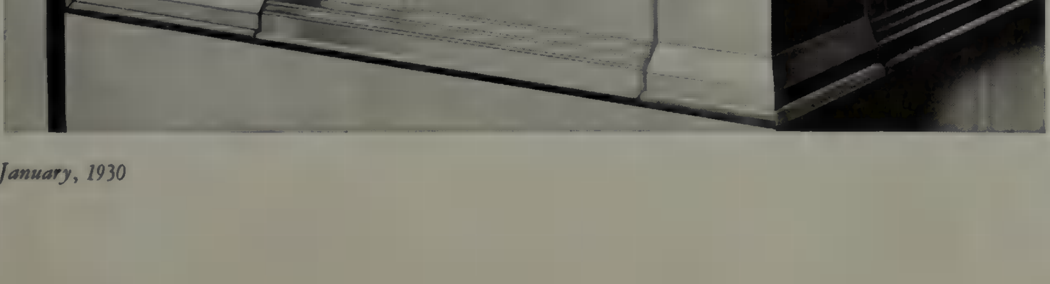
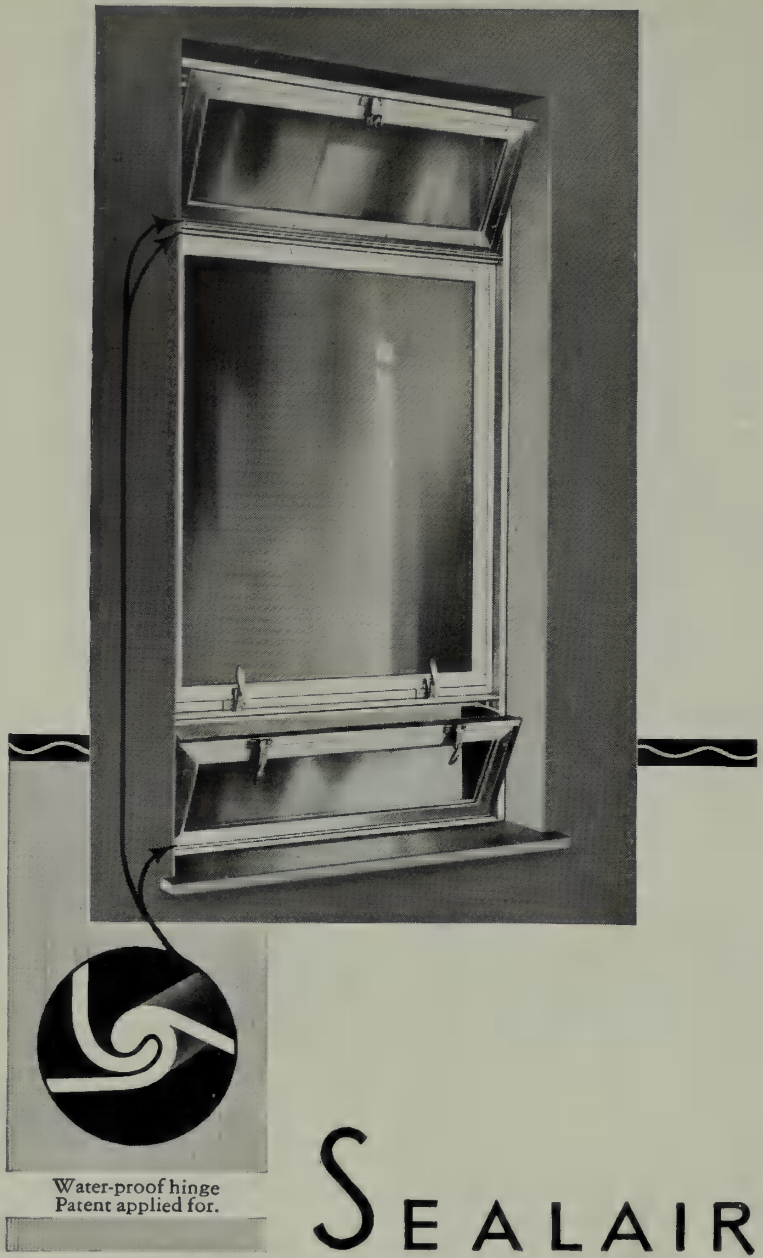
Boston, Massachusetts
Buffalo, New York
Cleveland, Ohio
Cincinnati, Ohio
Charlotte, North Carolina
Chicago, Illinois
Detroit, Michigan
Kansas City, Missouri
Louisville, Kentucky
Memphis, Tennessee
Milwaukee, Wisconsin
New Orleans, Louisiana
New York, New York
Omaha, Nebraska
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania




Water-proof hinge
Patent applied for.

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A BETTER WINDOW for COMMERCIAL BUILDINGS

Not just another window but a distinctly new type designed solely to meet the needs of modern commercial buildings. Closed — it is air-tight. All sashes are inswinging — all provide ample controlled ventilation. THE ENTIRE WINDOW MAY BE WASHED FROM THE INSIDE. Being furnished in heavy gauge bronze or steel the fixed joints are strongly welded and reinforced where necessary.

Send for complete description, specifications and F. S. details

THE
Kawneer
COMPANY
Niles, Mich. • Berkeley, Calif.

ALSO WEIGHT-HUNG WINDOWS (Light and Heavy) AND CASEMENTS

CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 184

After reviewing advertisements in this issue—use Sweet's Architectural Catalogues for 1930 for catalogue and specification information on the products of the most of the manufacturers.

Acid Proof Chemical Stoneware
Knight, Maurice A.

Acoustical Installation—Guastavino, R., Co.

Acoustics
Boston Acoustical Eng. Division of Housing Company
Johns-Manville Corp.

Air Compressors
Westinghouse Traction Brake Co.

Air Conditioner
Airway Electric Appliance Corp.
Lewis Corporation

Arc Welding—Lincoln Electric Co.

Architectural Faience
Associated Tile Mfrs.

Architectural Supplies
Higgins, Chas. M., & Co.

Artstone—Rackle, George, & Sons Co.

Asbestos—Johns-Manville Corporation

Baking Machinery
Read Machinery Co.

Balances, Sash—See Sash Balances

Basement, Windows—Steel
Detroit Steel Products Co.
Truscon Steel Company

Beads—Corner Metal
Concrete Engineering Co.
Milwaukee Corrugating Co.
Truscon Steel Company
Wheeling Corrugating Co.

Beams, Angles, Channels, Etc.
Carnegie Steel Company

Belts
Dayton Rubber Mfg. Co.

Blackboards—Weber Costello Co.

Boiler and Pipe Covering
Johns-Manville Corporation
Ric-wiL Company

Boilers—American Gas Products Co.
American Radiator Co.
Bryan Steam Corp.
Smith, H. B., Company, The, Inc.

Bolts—Door—Corbin, P. & F.

Brass and Bronze
See "Ornamental Metal"

Brass and Copper
See "Copper and Brass"

Brick
Finzer Bros. Clay Co.

Bridges—Steel—American Bridge Co.

Builders—Stone & Webster, Inc.

Buildings—Steel
Carnegie Steel Company
Nat'l Assoc. of Flat Rolled Steel Mfrs.

Butts—Corbin, P. & F.
Stanley Works

Cabinet Work—Hyde-Murphy Co.

Cabinets—Kitchen
Circle A Products Corp.

Cabinets—Radiators
Tuttle & Bailey Mfg. Co.

Casement Operators—Rixson, Oscar C., Company

Casements—Crittall Casement Window Co.
Detroit Steel Products Co.
International Casement Co.
Truscon Steel Company

Cast Stone
Cast Stone Institute

Cellar Drainer
Penberthy Injector Co.

Cement
Louisville Cement Company
Medusa Portland Cement Co.
Portland Cement Association
U. S. Gypsum Co.
Universal Cement

Cement White
Medusa Portland Cement Co.

Chain Sash—American Chain Co., Inc.
Detroit Steel Products Co.
Smith & Egge Mfg. Co.

Channels—Carnegie Steel Co.
Concrete Engineering Co.

Church Memorials
American Seating Company

Clamps—Lock Joint
Hyde-Murphy Co.

Clay Vitrified
Clay Products Association

Clocks, Electric
Landis Eng. & Mfg. Co.

Columns, Porches, Etc.
Hartmann-Sanders Co.
Union Metal Mfg. Co.

Compressors—Air
Westinghouse Traction Brake Co.

Concrete Accelerator
Master Builders Co.
Solvay Sales Corp.

Concrete Construction—Reinforced
American Steel & Wire Company
Concrete Engineering Co.
Truscon Steel Company
U. S. Gypsum Co.

Concrete Hardener
Master Builders Co.
Sonneborn, L., Sons, Incorporated
Solvay Sales Corp.

Concrete Piling—See Piling—Concrete

Concrete Surface Treatment
Master Builders Co.
Solvay Sales Corp.

Conduit for Underground Heating Pipes
Ric-wiL Company

Conduo-Base
Conduo-Base Co.

Coping Wall
Clay Products Association

Copper and Brass
Baltimore Copper Mills
Revere Copper & Brass, Inc.

Copper Sheets
Baltimore Copper Mills
Revere Copper & Brass, Inc.

Cork Covering
Armstrong Cork & Insulation Co.

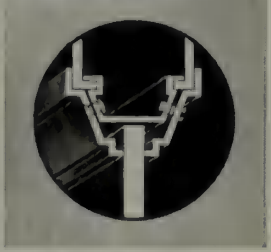
Cork Tile Flooring
Armstrong Cork Company, Custom Floors Dept.

Corkboard
Armstrong Cork & Insulation Co.

Covering—Pipe and Boiler
Armstrong Cork & Insulation Co.
Johns-Manville Corporation
Ric-wiL Company

Door Closers—Corbin, P. & F.
Norton Door Closer Co.
Sargent & Company

Door and Window Frames
Andersen Frame Corp.
Allen & Drew, Inc.



Glazing moulding can be quickly applied.

WELDED BRONZE DOORS of STRENGTH and BEAUTY

With several years' background as makers of metal doors we point with justifiable pride to the one presented above. Structurally it is an admirable assembly of heavy bronze members welded to assure permanent service. Panel mouldings are modern in character and secured in a manner to expedite glazing. Doors are fitted and hung to frame, hardware applied and complete unit furnished ready to install.

Send for complete description and F. S. details.

THE
Kawneer
COMPANY
Niles, Mich. • Berkeley, Calif.

ALSO SHOWER STALL AND SHOW CASE DOORS

The FENCE *that is capable of* Infinite Possibilities

HERE, the architect's ingenuity and artistic sense combined to make Dubois the basis for this unique rose arbor and fruit espalier.

It illustrates how admirably Dubois lends itself to artistic uses. There is scarcely a problem in the sphere of landscaping where Dubois does not provide the happy solution, either by itself or in conjunction with iron, stone, brick or concrete, blending easily with all.

Learn the many ways in which Dubois can help the architect. Send today for free illustrated Album, specially prepared for Architects and Landscape Architects. Contains photographs of its many uses, and specifications and prices.

Specify Dubois by name. *It is your guarantee of* genuine *woven wood fencing. Made in France of split, live chestnut and Copperweld wire and shipped in convenient 5 ft. sections ready to erect, and in three heights: 6' 6", 4' 11", and 3' 10".*

DUBOIS *Reg. U. S. Pat. Off.*

Woven Wood Fence

Made in France

DUBOIS FENCE & GARDEN CO., Inc.
101 Park Avenue *(Phone: Lexington 2404)* New York

Doors
- Allen & Drew, Inc.
- Bayley, William, Company
- Compound & Pyrono Door Co.
- Cornell Iron Works, Inc.
- Dahlstrom Metallic Door Co.
- Detroit Steel Products Co.
- Hamlin, Irving
- Hyde-Murphy Co.
- International Casement Co.
- Kinnear Mfg. Co.
- Peelle Company, The
- Roddis Lumber & Veneer Co.
- Sanymetal Products Co.
- Security Fire Door Co.
- Thorp Fire Proof Door Company
- United Metal Products Co.
- Wheeler-Osgood Co.
- Weis, Henry, Mfg. Co.
- Wilson, J. G., Corp.

Drains
- Crampton-Farley Brass Co.
- Josam Mfg. Co.

Drawing Inks
- Higgins, Chas. M., & Co.

Drives—Cog Belt
- Dayton Rubber & Mfg. Co.

Electric Switches
- Hart & Hegeman Mfg. Co.

Electrical Equipment
- Adam, Frank, Electric Co.
- American District Tel. Co.
- General Electric Company
- Guth, Edwin F., Co.
- Hart & Hegeman Mfg. Co.
- Hazard Insulated Wire Works
- Holtzer-Cabot Electric Co.
- Imperial Electric Co.
- Westinghouse Electric & Mfg. Co.

Elevator Doors
- Peelle Company, The
- Security Fire Door Co.
- Tyler Company
- United Metal Products Co.

Elevator Inclosures
- United Metal Products Co.

Elevators
- Otis Elevator Company
- Tyler Company
- Westinghouse Electric Elevator Co.

Enamels
- Du Pont de Nemours, E. I., & Co., Inc.
- Pratt & Lambert, Inc.
- U. S. Gutta Percha Paint Co.

Engineers—Inspection
- Hunt, Robert W., Company

Expanded Casings—Milwaukee Corrugating

Expanded Metal
- Truscon Steel Company

Fence Post—Steel
- American Steel & Wire Co.

Fence—Woven Wood
- DuBois Fence & Garden Co., Inc.

Fences—American Steel & Wire Co.
- Fiske, J. W., Iron Works

Finishing Lime
- Ohio Hydrate & Supply Co.

Fire Exit Devices
- Vonnegut Hardware Company

Fireplace Construction
- Covert H. W., Co.

Fireplace Unit—Heatilator Co.

Fireproof Doors, Shutters and Windows
- Allen & Drew, Inc.
- Cornell Iron Works, Inc.
- Dahlstrom Metallic Door Co.
- Detroit Steel Products Co.
- Peelle Company, The
- Thorp Fire Proof Door Company
- Truscon Steel Company
- United Metal Products Co.

Fireproofing
- See "Concrete Construction," "Covering, Pipe and Boiler," "Fireproof Doors, Shutters and Windows," "Lath-Metal," Tile

Architects Specify McCRAY with Confidence

McCRAY
REFRIGERATORS
FOR ALL PURPOSES
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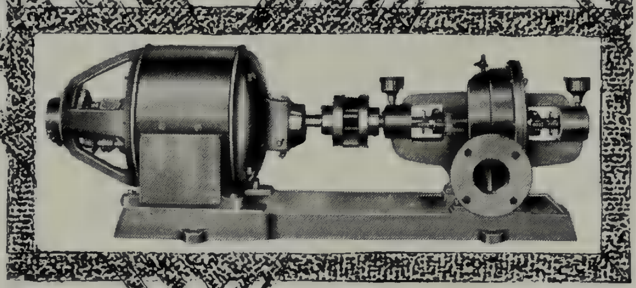

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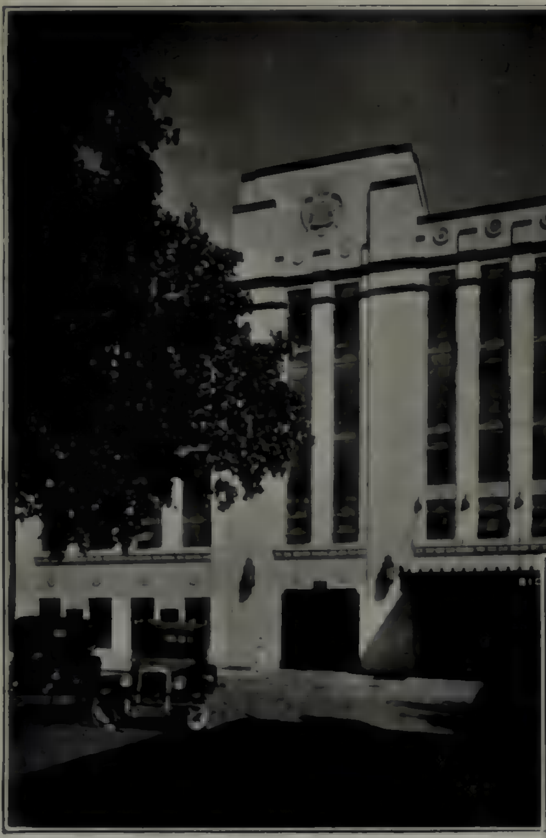

Richmond Garage, Richmond, Va.
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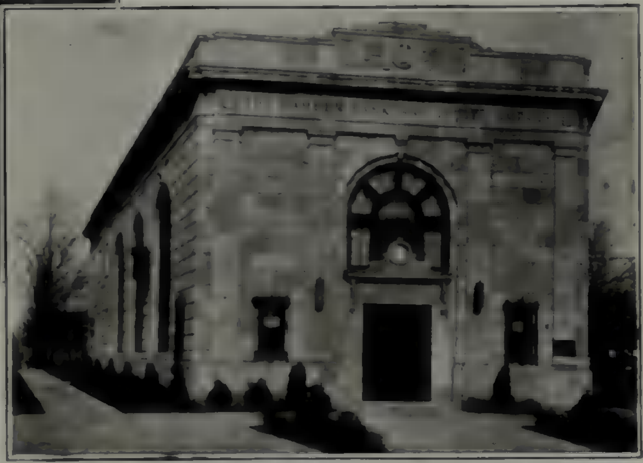
Both buildings are entirely faced with Cast Stone



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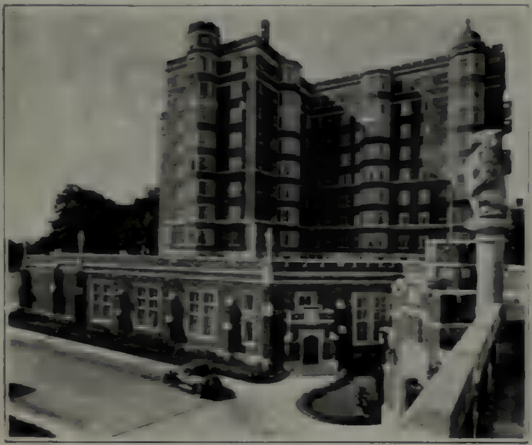

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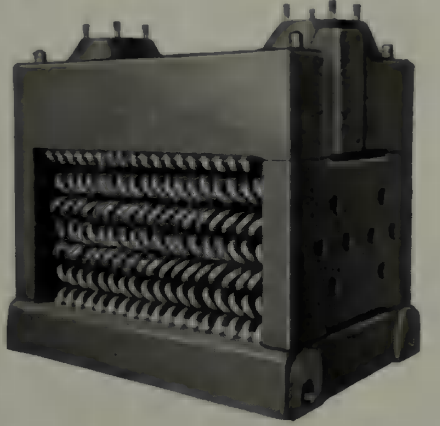

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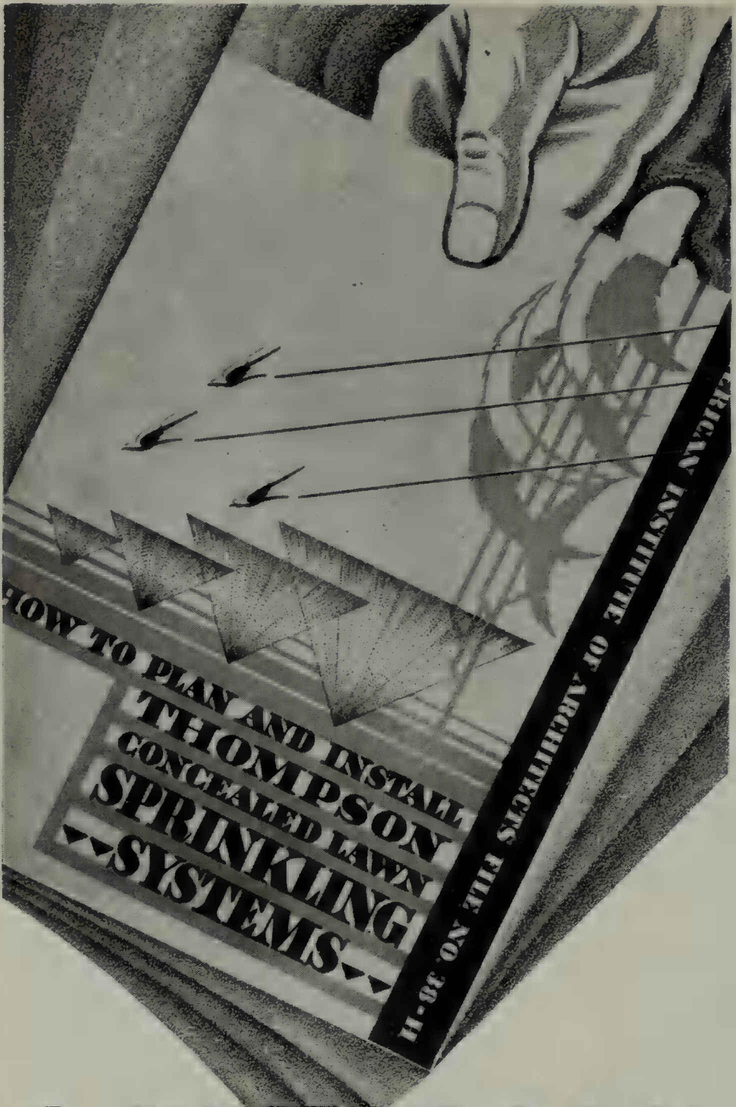
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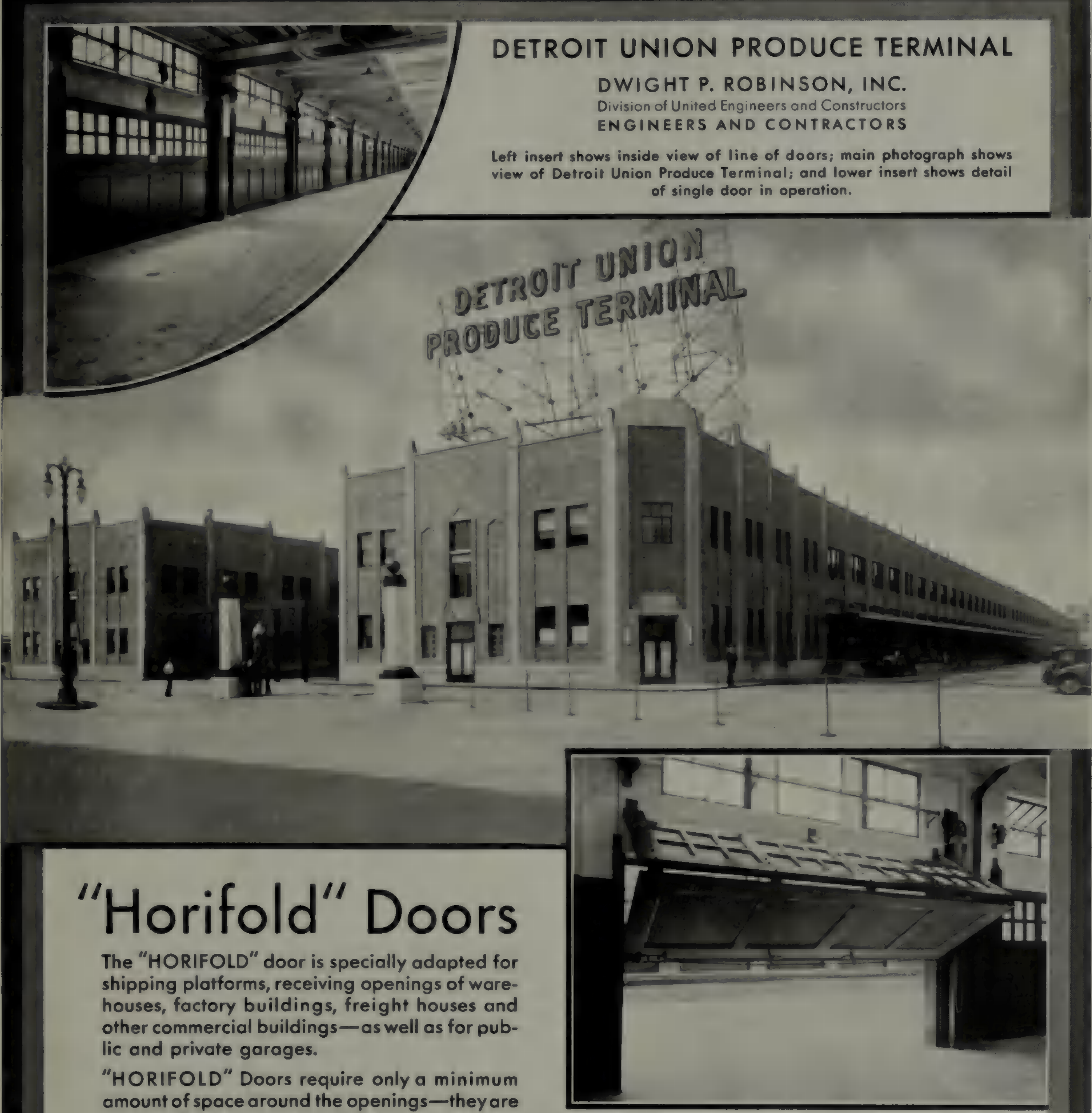

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Left insert shows inside view of line of doors; main photograph shows view of Detroit Union Produce Terminal; and lower insert shows detail of single door in operation.

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  - Cellized Oak Flooring, Inc.
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INDEX TO ADVERTISEMENTS

Classified Directory of Advertisers, Pages 168-182 Inclusive

Catalogues of concerns marked (S) are in Sweet's Architectural Catalogues for 1930.

(S) Adam, Frank, Electric Co. 24
(S) Adamston Flat Glass Co. 142
(S) Aerofin Corporation 104
Air-Way Electric Appliance Corp. 39
(S) Alan Wood Steel Co. 136
(S) Allen & Drew, Inc. 99
(S) Alberene Stone Company 126
(S) Aluminum Co. of America 47
American Bridge Co. 100
(S) American District Telegraph Co. 74
(S) American Radiator Co. 71–96
American Seating Co. 155
American Sheet & Tin Plate Co. 109
(S) American Steel & Wire Co. 6
(S) American Telephone & Telegraph Co. 165
American Walnut Mfrs. Assoc. 5
(S) American Window Glass Co. 26–27
(S) Anderson Frame Corp. 157
Andorra Nurseries, Inc. 146
Architects' Library 156–158
Architects' Announcements 85
Arkansas Oak Flooring Co. 41
Architectural Record 116–144–152
(S) Armstrong Cork Co. 179
Custom Floors Dept.
(S) Armstrong Cork & Insulation Co. 60
(S) Automatic Electric, Inc. 135

Baltimore Copper Mills Division Revere Copper & Brass, Inc. 138
(S) Batchelder-Wilson Co. 62
(S) Bates Bros. Seam-Face Granite Co. Inc. 153
(S) Bayley, William, Company 94
Belson Mfg. Co. 152
Bethlehem Steel Co. 40
Bonded Floors 88
(S) Bridgeport Brass Co. 44
(S) Briar Hill Stone Co. 11
(S) Bruce, E. L., Co. 41
Bryan Steam Corp. 177
(S) Bryant Heater & Mfg. Co. 19
(S) Buffalo Forge Co. 127

(S) Caldwell Mfg. Co. 144
(S) Carey, Philip, Co. 13
Carnegie Steel Co. 129
(S) Carter Bloxonend Flooring Co. 57
(S) Cast Stone Institute 175
(S) Central Alloy Steel Corp. 55
(S) Cellized Oak Flooring Co., Inc. 41
(S) Century Brass Mfg. Co. 166
(S) Cheney Company 33
(S) Circle A Products Corp. 128
(S) Compound & Pyrono Door Co. 63
Concrete Marble Co. 30
(S) Conduo-Base 140
(S) Congoleum-Nairn Co. 88
(S) Corbin, P. & F. 89
(S) Cornell Iron Works, Inc. 152
(S) Covert H. W. Co. 37
Construction Statistics 160
(S) Crane Co. 132
(S) Crittall Casement Window Co. 8–9
(S) Cutler Mail Chute Co. 144

(S) Dahlstrom Metallic Door Co. 113–140
Dayton Rubber Mfg. Co. 45
(S) De Paoli Del Turco Foscato Corp. 142
(S) Detroit Show Case Co. 122
(S) Detroit Steel Products Co. 79
(S) Diebold Safe & Lock Co. 20
Dodge, F. W. Corp. 114
(S) Dubois Fence & Garden Co., Inc. 170
(S) Duplex-A-Lite Division Miller Co. 46
(S) Dunham, C. A., Co. 106
(S) du Pont, E. I. de Nemours & Co., Inc. 64–146

(S) Evans, W. L. 134
(S) Excelso Products Corp. 162

(S) Federal Cement Tile Co. 23
(S) Federal Seaboard Terra Cotta Corp. 98
(S) Fiat Metal Mfg. Co. 148
(S) Flax-li-num Insulating Co. 68

(S) General Electric Co. 86–101
(S) Georgia Marble Co., The 137
Georgian Mantel Co. 154
Gumwood Service Bureau 75

(S) Hamlin Irving 148
Hardwood Mfrs. Institute 75
(S) Hart & Cooley Mfg. Co. 38
(S) Hart & Hegeman Division 147
The Arrow-Hart & Hegeman Electric Co.
(S) Heatilator Co. 173
(S) Higgin Manufacturing Co. 136
Higgins, Chas. M., & Co. 150
(S) Highton Wm. Sons, Division of Hart & Cooley Mfg. Co. 38
(S) Hoffmann & Billings Mfg. Co. 61
(S) Holtzer-Cabot Elec. Co., The 112–172
(S) Hunt, Robert W., Company 132
(S) Hyde-Murphy Co. 146

Imperial Electric Company 119
(S) Indiana Limestone Co. 3
(S) International Nickel Co. .... 3rd Cover

Jacobson & Company 149
(S) Johns-Manville Corporation 42–43
(S) Johnson Service Co. 118
(S) Josam Mfg. Co. 120

(S) Kawneer Company 167–168–169
(S) Kelley Island Lime & Transport Co. 73
(S) King Construction Co. 69
(S) Kinnear Mfg. Co. 25
(S) Kliegl Bros. 152
(S) Knight, Maurice A. 140
(S) Knapp Bros. Mfg. Co. 140
Kohler Co. 95

(S) Landis Eng. & Mfg. Co. 51
(S) Leonard Rooke Co. 150
Lewis Corporation 121
(S) Lincoln Electric Co. 36
Long-Bell Lumber Co. 41
(S) Louisville Cement Co. 163
(S) Ludowici-Celadon Co. 16

(S) MacArthur Concrete Pile Corp. 108
(S) McCray Refrigerator Sales Corp. 171
(S) Mahon, R. C., Company 35–154
(S) Master Builders Co. 107
(S) Mesker Bros. Iron Co. 97
(S) Milwaukee Corrugating Co. 133
(S) Modine Mfg. Co. 144
(S) Mosaic Tile Co. 123
Motor Wheel Corp. 77

(S) Nash Engineering Co. 53–54
Nashville Hdw. Flooring Co. 41
(S) National Bldg. Granite Quarries Assoc. 84
(S) National Fire Proofing Corp. 67
(S) National Mortar & Supply Co. 49
(S) National Steel Fabric Co. 34
Division Pittsburgh Steel Co.
(S) National Terra Cotta Society 91
National Tube Co. 102
(S) Northwestern Terra Cotta Co. .... [illegible]
(S) Norton Company 159
(S) Norton Door Closer Co. 28

(S) Oak Flooring Mfrs. Assoc. of U. S. 182
(S) O'Brien Bros. Slate Co., Inc. 72
(S) Otis Elevator Co. 48
(S) Owens Sons, Owen W., Inc. 78

(S) Peelle Company, The 22
(S) Peerless Unit Ventilation Co., Inc. 146
(S) Penberthy Injector Co. 161
(S) Pfaltz & Bauer, Inc. 150
Port Orford Cedar Prod. Co. 103
(S) Pratt & Lambert, Inc. 29

(S) Rackle, Geo., & Sons Co., The 176
(S) Raymond Concrete Pile Co. 7
(S) Read Machinery Co. 178
(S) Reading Iron Co. 76
Recent Trade Publications 162
(S) Republic Iron & Steel Co. 17–18
Revere Copper & Brass, Inc. 56
(S) Ric-wiL Co. 164
(S) Rising & Nelson Slate Co. 66
(S) Rixson, Oscar C. Company 115
(S) Roddis Lumber & Veneer Co. 31
(S) Rome Brass Radiator Corp. 111
Rundle-Spence Mfg. Co. 130
(S) Russell & Erwin Mfg. Co. 93

(S) Samson Cordage Works 148
(S) Sanymetal Products Co. 12
Sargent & Co. 145
(S) Security Fire Door Co. 181
(S) Sheldon, F. C., Slate Co. 21
(S) Smith, H. B., Co. 81
(S) Smith & Egge Mfg. 140
Smith & Wesson 52
(S) Sonneborn, L., Sons, Inc. 183
(S) Solvay Sales Corp. 130
(S) Soss Mfg. Co. 154
Southern Cypress Mfrs. Assoc. 10
Southern Pine Assoc. 58
(S) Spencer Turbine Co. 185
(S) Stanley Works 15
Stone & Webster Eng. Corp. 141
(S) Structural Gypsum Corp. 82–142
(S) Sturtevant, B. F., Co. 117

(S) Taylor, Halsey W., Co. 14
Taylor, N. & G., Company 150
(S) Thompson Mfg. Co. 180
(S) Thorp Fire Proof Door Co. .... 4th Cover
(S) Trumbull Electric Mfg. Co. 83
(S) Truscon Laboratories 2
(S) Truscon Steel Co. 186

(S) Union Metal Mfg. Co. 143
(S) United Metal Products Co. 138–140
Universal Cement .... 2nd Cover
(S) U. S. Gutta Percha Paint Co. 87
(S) U. S. Mineral Wool Co. 154

(S) Ventilouvre Co. 128
(S) Vermont Marble Co. 131
(S) Vitrolite Co. 148
(S) Vonnegut Hardware Co. 32
(S) Vortex Mfg. Co. 110
(S) Weatherbest Stained Shingle Co. 134
(S) Weber Costello Co. 50
(S) Weis Henry Mfg. Co. .... [illegible]
(S) Westco-Chippewa Pump Co. 174
(S) Western Electric Co. 106
(S) Westinghouse Electric Elevator Co. 151
(S) Westinghouse Electric Mfg. Co. 125
(S) Westinghouse Traction Brake Co. 92
(S) Wheeling Corrugating Co. 90
(S) Wheeler-Osgood Co. 70
(S) Williams Pivot Sash Co. 80
(S) Wright Rubber Products Co. 65

(S) Yale & Towne Mfg. Co. 139

(S) Zenitherm Company, Inc. 124

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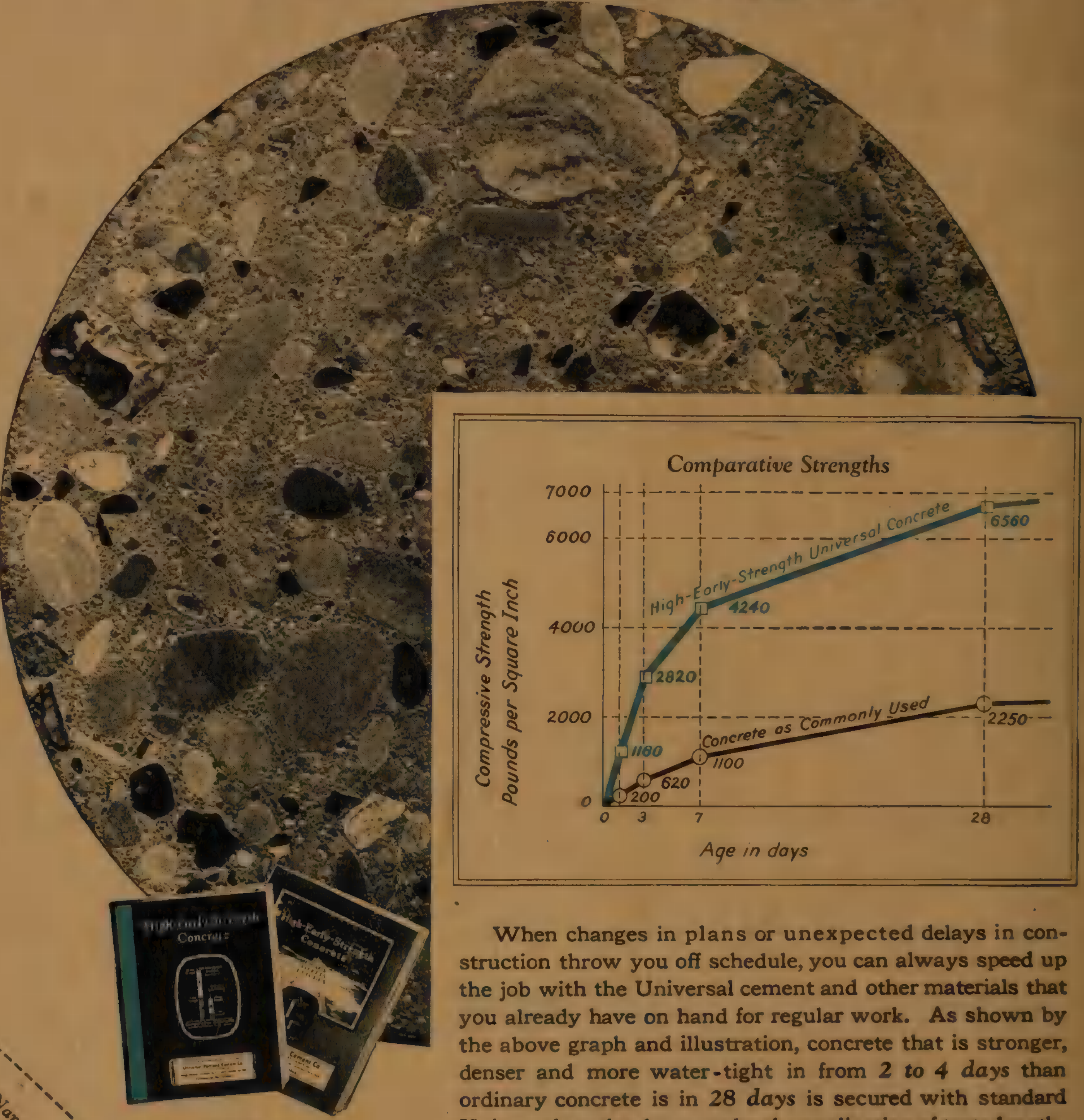

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VOLUME 67 FEBRUARY, 1930 NUMBER 2

Articles PAGE
Polychrome Floors
By Harold Donaldson Eberlein and Roger Wearne Ramsdell 103
Miralago Ballroom and Shops
George Fred Keck, Architect 105–109
Mass-Production and the Modern House (Part II)
By Lewis Mumford 110–116
Cutting Dwelling Costs 117–120
Store for Loft, Inc. *Thompson and Churchill, Architects* 137
Three "London Character Shoe" Stores
Vahan Hagopian, Architect 138–143
Lettering as an Element of Store Design 144–148
Standardizing Architectural Drafting Room Practice
By Thomas E. French 149–154
North Italian Brick Chimneys (Part IV)
By Myron Bement Smith 155–162
Beach at Vevey-Corseaux, Switzerland
Otto Zollinger, Architect 163–166
The Crafts in Modern Swedish Architecture
By Robert W. McLaughlin, Jr. 168–171
Picturesque Architecture *By Henry Wright* 172–173
When Does It Pay to Remodel? *By Gerhard Herschfeld* 176–178
Plates
Polychrome Floors *Andre Leconte, Designer* *Frontispiece*
Portfolio of Current Architecture, Featuring House for Theodore Bodenweiser, House for Hugh Goforth, Store Front for Loft, Inc. 121–136
Technical News and Research
Remodeling: An Opportunity for the Architect
By Robert L. Davison 179–204
Editorial
Restoration of Old Buildings *By A. Lawrence Kocher* 174–175
Correspondence
Patrons or Clients? *By George Cronin* 167

CONTRIBUTORS

Mr. Lewis Mumford is already known to most of the readers of The Architectural Record. The article in this number is his second on Mass Production and the Modern House, the first having appeared in January. Mr. Mumford is the author of *Sticks and Stones*, *The Golden Day*, *Herman Melville*, and other books and articles on American life and art.

•

We are pleased to present the editorial on Picturesque Architecture by *Mr. Henry Wright*. It is probably not an idle boast to say that *Mr. Wright* is the foremost community planner in the architectural profession in the United States. His work for the War Department and for such developments as those of the City Housing Corporation has been unique in scope and imagination. *Mr. Wright* will be remembered as the author of the article on apartment houses in The Record last March. In the next issue (March, 1930) he will return to this subject again. With the manuscript in hand, the editors feel that this contribution is the outstanding one of a whole year and will make an international impression.

•

Mr. Gerhard Herschfeld is an economist specializing in shift of trade in the American city.

•

Having mentioned that *Henry Wright* is working on "The Place of the Apartment House in the Modern Community," we may as well conclude by saying that the March number is the annual Apartment House Number and will give an extensive showing to the latest American apartment house work of all sizes and all cities.

•

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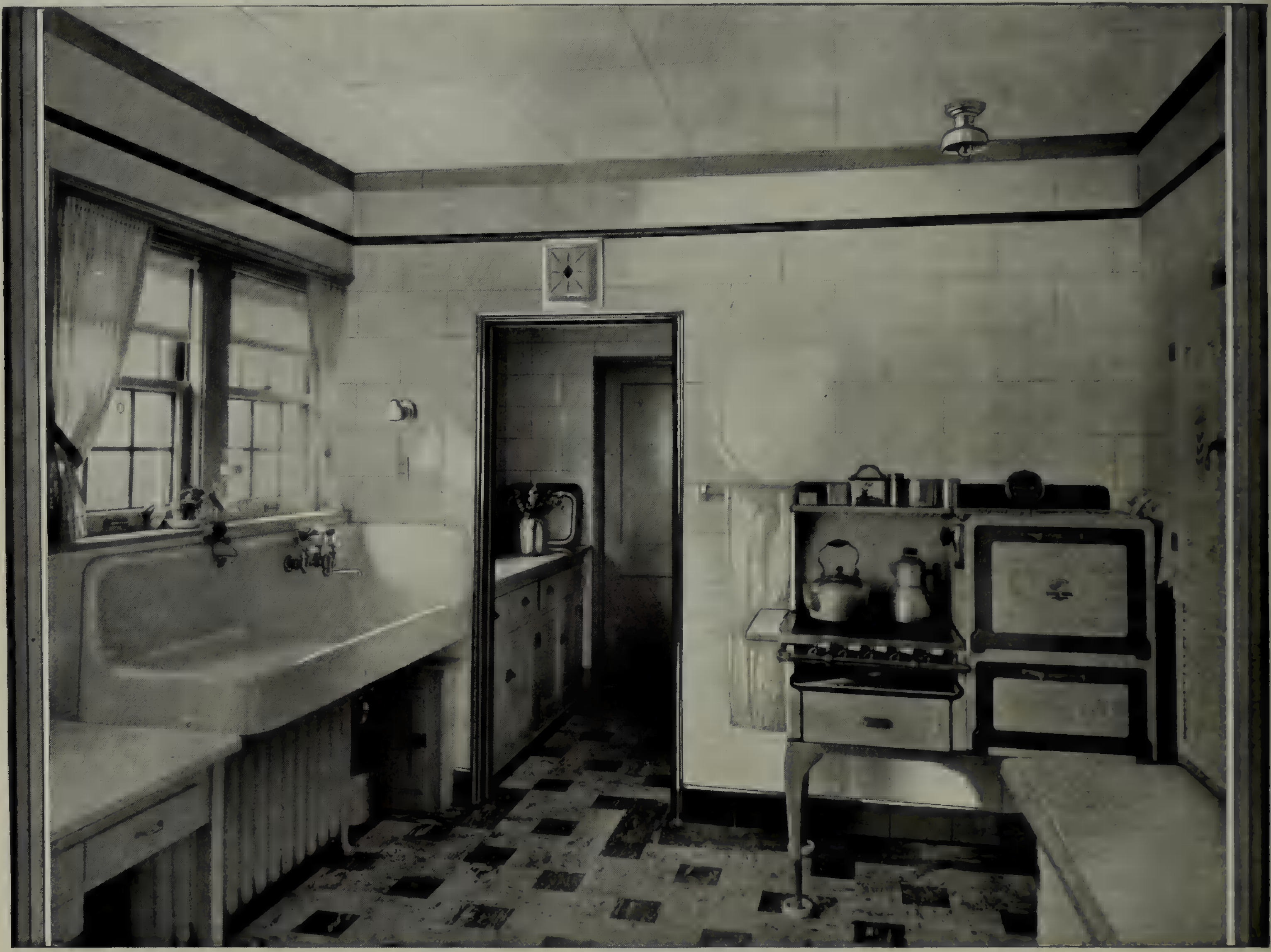

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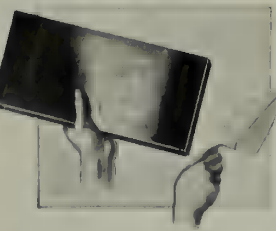

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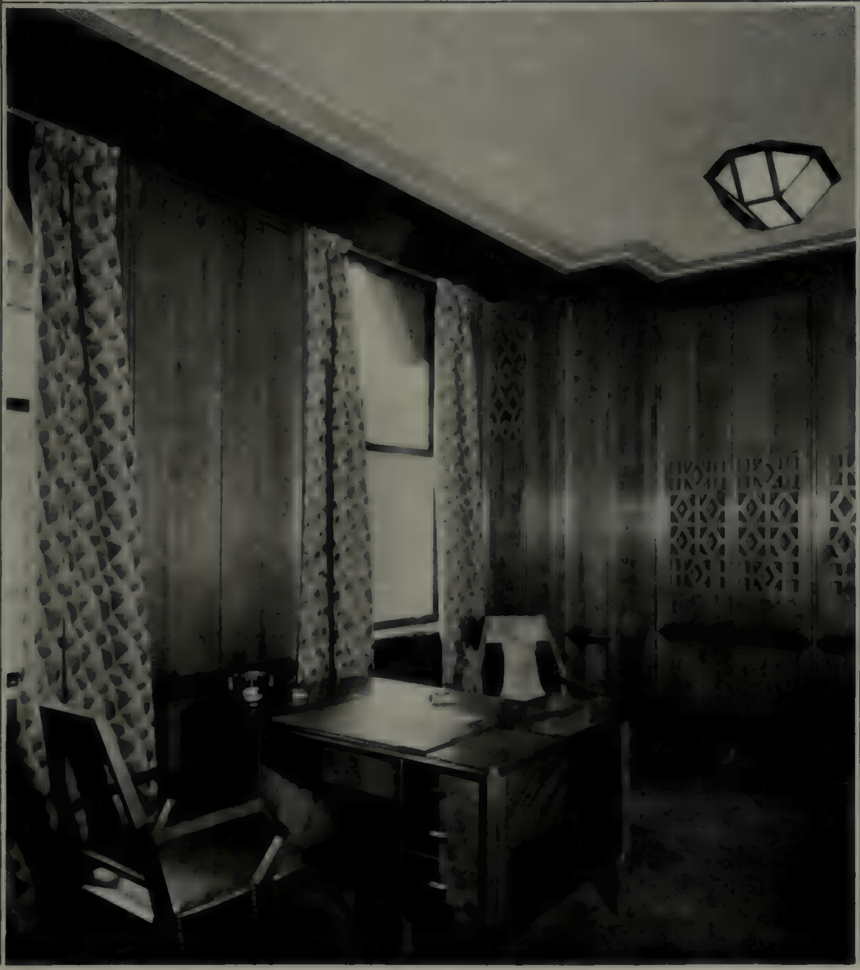

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STEEL is the strongest building material . . . the safest to work with . . . the most adaptable. Steel permits the greatest speed in construction, occupies less space and allows larger interiors. Steel can be erected any time, anywhere, in any weather with expedition. Steel is fool-proof—it will stand more abuse than any other material. The properties of steel are known *before* it goes into construction—and those properties are kept consistent by constant inspection, test and analysis at the mill.

No other building material is so flexible in its application as steel . . . or permits such variety in design. No other type of building is so easily and economically remodeled, removed, altered or extended as a steel structure. Steel provides a stronger, safer, more adaptable building medium for any type of modern building or bridge . . . large or small. Before you build—no matter what the nature of the structure—consider steel.

A Technical Service Bureau is at the disposal of architects, engineers, owners and others who have need of any information which can be supplied through the American Institute of Steel Construction, Inc.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

The co-operative non-profit service organization of the structural steel industry of the United States and Canada. Correspondence is invited. 200 Madison Avenue, New York City. District offices in New York, Worcester, Philadelphia, Birmingham, Cleveland, Chicago, Milwaukee, St. Louis, Topeka, Dallas and San Francisco. The Institute publishes twelve booklets, one on practically every type of steel structure, and provides also in one volume, "The Standard Specification for Structural Steel for Buildings," "The Standard Specification for Fireproofing Structural Steel Buildings," and "The Code of Standard Practice." Any or all of these may be had without charge, simply by addressing the Institute at any of its offices.

STEEL

INSURES STRENGTH

AND SECURITY

Job 1006

Federal Reserve Bank Bldg.,
Cleveland, Ohio
Owner: Federal Reserve Bank
Architect: Walker & Weeks
3003 Piles—91430 Feet

Spirally reinforced steel shells left on every Standard RAYMOND CONCRETE PILE

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that tells the story of modern building foundation construction North, East, South, West . . . wherever Architects, Engineers and Owners want work done fast, and at lowest cost consistent with absolutely dependable results.

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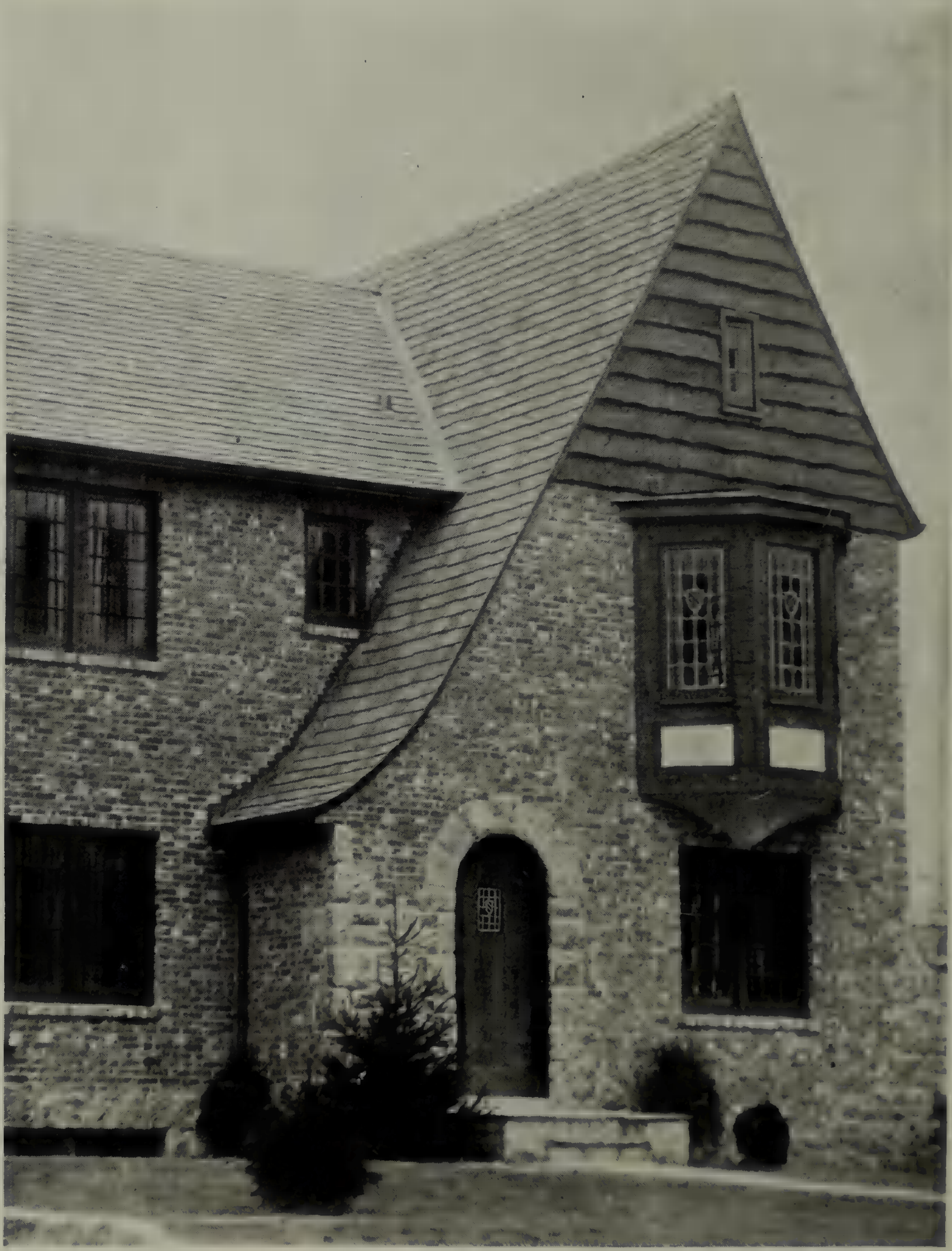
JOHNS-MANVILLE
JM
PRODUCTS



Louis C. Sigloch—Architect

The new Johns-Manville Asbestos Shingles are designed as to texture and color to provide materials from which you may choose a roof suitable to virtually every type of house. In the accompanying illustration we show a small brick house roofed with Cotswold Blend J-M Asbestos Shingles. A color photograph of this house will appear in Johns-Manville advertising in Collier's of March 22nd. We believe that by using J-M Asbestos Shingles you can obtain not only a safe, permanent roof but also the effect you desire.

Johns-Manville
RIGID
ASBESTOS SHINGLES

JOHNS-MANVILLE
JM
PRODUCTS

Shingles that are close to nature

ARCHITECTS throughout the country have been keenly interested in recent developments in roofing as typified in the new colors and textures of Johns-Manville Asbestos Shingles. These interesting shingles now have color values and textures heretofore impossible to obtain in this type of roofing material.

There are Salem Grays, for example. Those delightful warm, gray shades, with which New England weather dyed the roofs of Colonial houses, have been captured permanently in J-M Salem Grays. In using these shingles, you obtain, besides esthetic value, the practical certainty of long life and fire protection.

Fit to Roof the Most Carefully Designed Home

The Salem Grays are typical of the feeling in J-M Asbestos Shingles. The entire line shows the restraint of good taste, yet helps to provide individuality in the roof—for instance, Cornwall and Cotswold Blends. These shingles in varied shades of reds and greens, tapered shapes and random widths, can be used to obtain exactly the effects desired for almost any style of house design. In fact we believe that from J-M shingles of today, you can select a roof which will be worthy of the most carefully designed house.

They are manufactured to do a definite job, to combine features not found in natural materials. They are thoroughly intelligent examples of the age of fabricated materials.

Our Architectural Representatives are equipped to serve you with expert advice with reference to matters of proper application to obtain the particular effects desired. Whether it be asbestos shingles, or any of the many J-M products which enter into building, our men are available for intelligent cooperation.

JOHNS MANVILLE
JM
PRODUCTS

FOR THE BUILDING INDUSTRY

Acoustical Materials
Asbestocel Pipe Insulations
Asbestos and Asphalt Shingles
Built-up Roofs
Home Insulation
Insulating Board
Transite
Tile Flooring
Floridene Stone

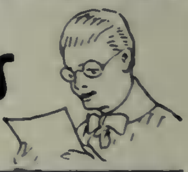
Johns-Manville

New York Chicago Cleveland
San Francisco Toronto

Physics Building, University of Washington, Seattle, Wash. Glazed with "A.W.G. CO." Window Glass—John Graham, Arch. W. P. Fuller & Co., Glazing Contractors.

MORE GLASS FOR WINDOWS

MEANS LESS FOR SPECTACLES



MORE and larger windows glazed with better glass reduces eye strain for those who read indoors.

In schools and office buildings especially, be sure to specify plenty of "A.W. G. CO." Window Glass. This is an important step in improving the beauty, comfort and value of any building.

Uniformly high quality has made "A. W. G. CO." the preference of architects for more than a quarter of a century . . . Write for our new literature.

A·W·G
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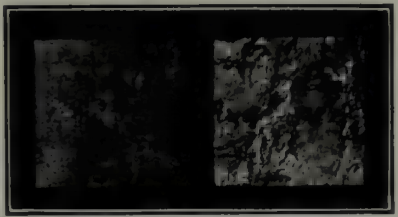
AMERICAN WINDOW GLASS CO.

Farmers Bank Building, PITTSBURGH, PENNA.

Metal Tile, in Leadclad, a favorite material in filling station design . . .

LEADCLAD metal tiles, Spanish or Duplex, are ideal for service and filling station designs. Light in weight, they permit of distinct construction economies since heavy supporting beams are unnecessary. They have all the beauty of old Spanish clay tile but will not crack or chip. They make a weatherproof, fireproof and lightning proof roof of pleasing symmetry. Leadclad tiles are longer lasting, too, because of the thick coating of PURE LEAD, which is fused to the copper bearing steel base.



LEADCLAD COPPER

has a base of PURE COPPER to which is fused a thick coating of PURE LEAD. Non-staining, unaffected by sulphurous air conditions, this material weathers to a soft stone like color. Recommended for flashings, gutters, leader heads and all drainage products. Furnished in either Old English or plain finish, as illustrated above.

A COMPLETE LINE OF GENUINE LEADCLAD AND APEX GALVANIZED ROOFING MATERIALS

LEADCLAD

MADE IN GLENDALE SINCE 1912

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TILES SHINGLES CORRUGATED V CRIMP ROLL STANDING SEAM CONDUCTORS EAVESTROUGH VALLEYS

ALSO APEX HEAVY GALVANIZED

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SEE OUR CATALOG IN SWEETS
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Leadclad Stocks in the following cities:

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Detroit, Mich.
Richmond, Va.
Los Angeles, Calif.
San Francisco, Calif.
Portland, Oregon
Baltimore, Md.
Norristown, Pa.
Tacoma, Wash.
Medford, Ore.

INVEST IN LIFETIME PARTITIONS

INDUSTRY today seeks means of reducing operation and upkeep figures. There is small place in American business for make-shift equipment, for short-lived assets. Architects, building managers, and owners are keenly alive to this fact. ¶ Hence the decided preference in many lines for partitions built of steel. In offices, shops, toilets . . . everywhere the trend is to steel. Why? ¶ Because steel LASTS. Even when re-vamping of partitions is necessary, unit sectional steel responds readily, without loss of time or scrapping of material, and with low labor charges. ¶ Steel finishes beautifully. It is fire-safe. It cleans easily, remains sanitary, splinter-warp-and-mar-proof. ¶ Insulation-packed, it insures quiet. The hollow drawn members afford convenient electric conduit runways. ¶ At every point, steel is a positive answer to industry's demand for service at a sensible price. ¶ For your partition needs, invest in Sanymetal, the steel partition that yields service for a lifetime . . . . and longer. ▲ ▲ ▲ ▲ ▲ ▲ ▲

The complete line of Sanymetal Products covers office partitions, factory partitions, toilet, shower and dressing compartments, hospital cubicles and metal costumers. We shall be glad to send you details on new and interesting designs of any of these products.

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Steel Toilet & OFFICE PARTITIONS

On the building... *off your mind*

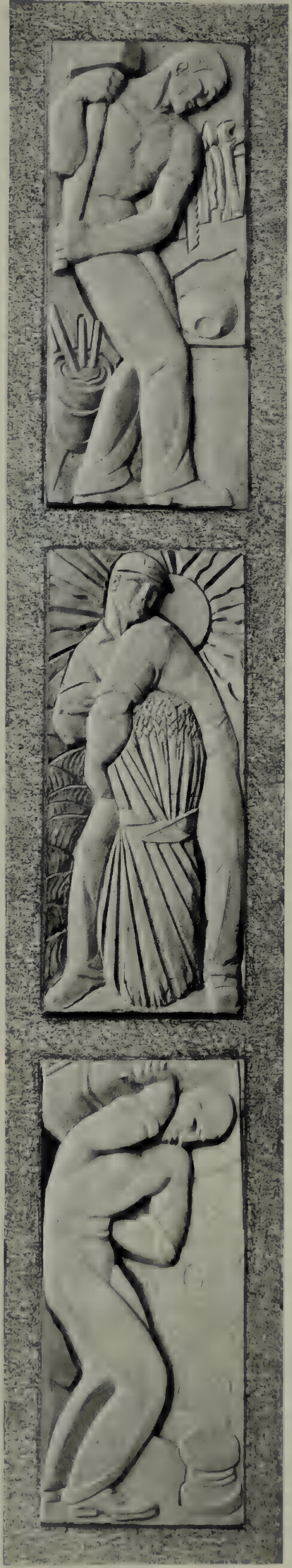
The tough, long-fibred felts are Carey-milled. The asphalts are Carey-refined. And into every Built-up Roof Carey builds a fifty-year experience.

It may be a Carev Feltex Built-up Roof that best "fits" the building you are designing. It may be a Carey Asbestos Built-up Roof. Or, perhaps, in a single specification, a combination of the two. But whatever it is, you can be sure that the number of plies, the weight of the plies, and the thicknesses will be *right*. The application, too, for Carey's own experts will do the work. And, as every architect knows... once the Carey *gold bond* Built-up Roof is on the building, it's completely off your mind!

Have us tell you, in detail, about Carey Roofing Specifications.

Carey
BUILT UP ROOFS
"A ROOF FOR EVERY BUILDING"

THE PHILIP CAREY COMPANY ⁁ *Lockland,* CINCINNATI, OHIO



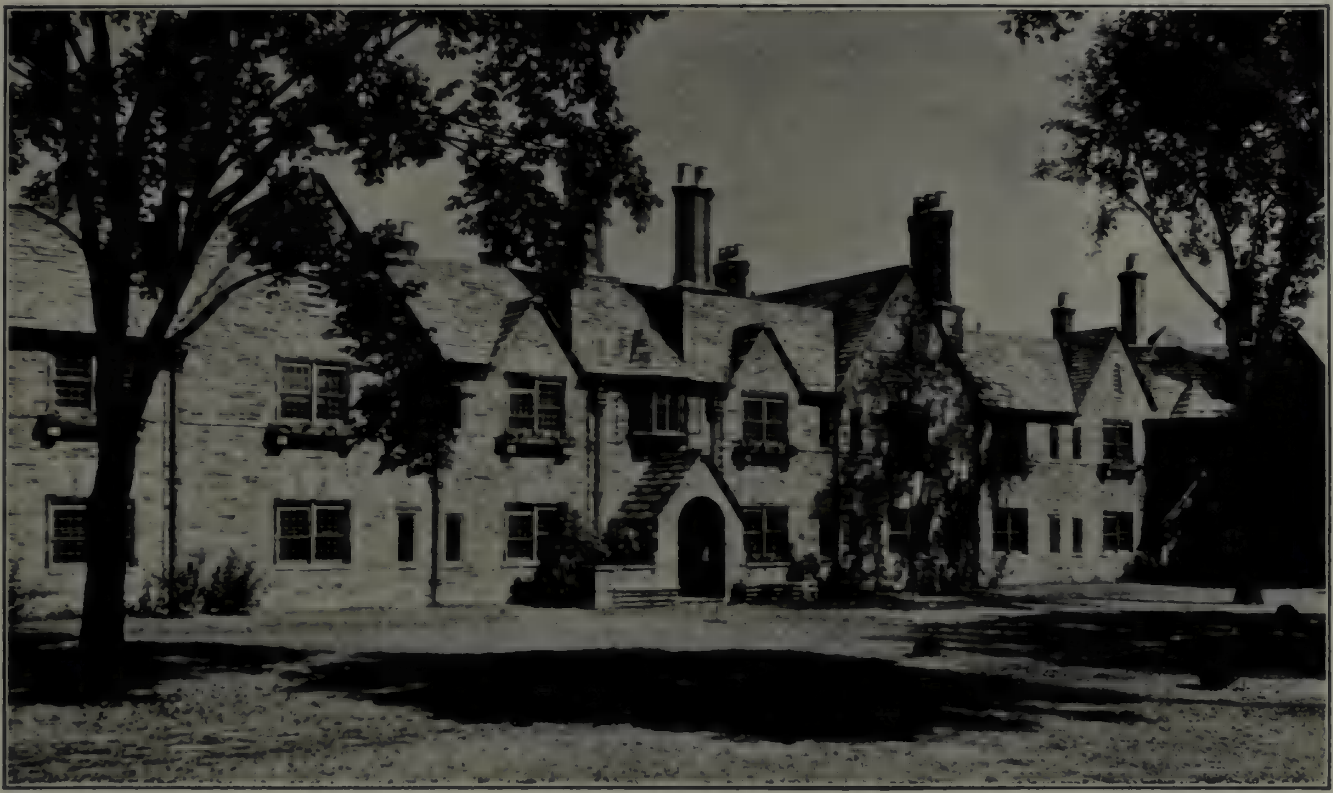
TERRA COTTA models showing symbolic designs used, with other ornamentation, to enrich the facades of the Laramie State Bank, Chicago. This building is a fine example of the successful use of color in architecture. Meyer & Cook, Architects.

The repetition of rich ornament in architecture is economical in terra cotta for the same reasons that a Rolls Royce sells for only a fraction of the cost of one original model. Neither product is "cheap" simply because the ultimate unit cost is relatively low. And in addition to this advantage of ECONOMY, terra cotta has the QUALITY of successfully resisting acid and soot in the ladened atmosphere of great cities. The finest details of the sculptor's original design are thus permanently preserved.

THE NORTHWESTERN TERRA COTTA COMPANY

DENVER · CHICAGO · ST. LOUIS

A small fraction of a magnificent project



The project—

—is the Marcus Ward Home for Aged and Respectable Bachelors and Widowers, at Maplewood, New Jersey. The office of John Russell Pope, Architects; Alexander B. Trowbridge, Consulting Architect.

The photograph—

—shows but a portion of the dormitory court; and the entire project would take a good many photographs, as you may glean from the nearly 55,000 square feet of Sheldon's slate in its roofs.

The Sheldon slate—

—is a combination of weathering grays, dark grays, bronzes, and blacks, creating a notably harmonious effect within the roof itself and with the balance of the buildings.

The walls, etc.

The masonry is a combination of warm-toned gray shading into tans, interspersed with brick of soft reds and gun-metal shades. The stone quoins and trim about window and door openings are of a seam-face granite showing the usual amount of warm grays blending into russet stains.

To complete the picture, it is proper to add that all exposed metal flashing, ornamental leaders and leader heads are executed in lead-coated copper.

Your projects

In connection with any good building you may have in contemplation or on the boards, we are at your service to design for it a roof which, like the one here described, represents the utmost in beauty and every other quality that will insure everlasting satisfaction on the part of all concerned.

F.C. SHELDON SLATE CO.

GENERAL OFFICES · GRANVILLE · N·Y·
· BRANCHES IN PRINCIPAL CITIES ·

The part Seating Played

In Grand Opera's Home In Chicago

CHICAGO'S NEW CIVIC OPERA HOUSE
A triumph of beauty—a masterpiece of architectural design. Graham, Anderson, Probst & White, Architects

When the curtain brought to a close Opera's first performance in the new Chicago Civic Opera House, music lovers unanimously acclaimed the auditorium a masterpiece of beauty and acoustical control.

Its seating was a revelation in restful, luxurious comfort. Built and installed by the American Seating Company, the chairs in beauty of design and upholstery, harmonized perfectly with the rich simplicity of the interior. Foremost acoustical experts, after infinite research and experiment, supervised their construction so as to provide the utmost sound absorption value. Thus "American" chairs were one of the factors in eliminating reverberation... and bringing voice or music to the audience clearly, naturally and without distortion.

A.I.A. file on Acoustics and its relation to Theatre and Auditorium seating gladly sent to interested architects.

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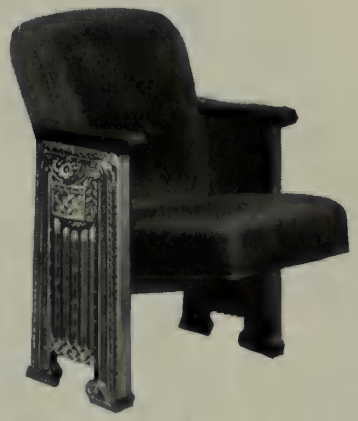


CHAIR No. 7860—*Specially built for the Chicago Civic Opera House. Back, full spring upholstered in mohair. Seat, full floating spring edge, upholstered in mohair, with new, easy operating noiseless ball-bearing hinge. Standards designed to harmonize with the interior architectural treatment, aisle lights built in.*

THE HERMAN NELSON CORPORATION MAKES AN ANNOUNCEMENT TO THE ARCHITECT

During more than twenty years of developing and pioneering work, this organization has met with the resistance always encountered in efforts toward progress.

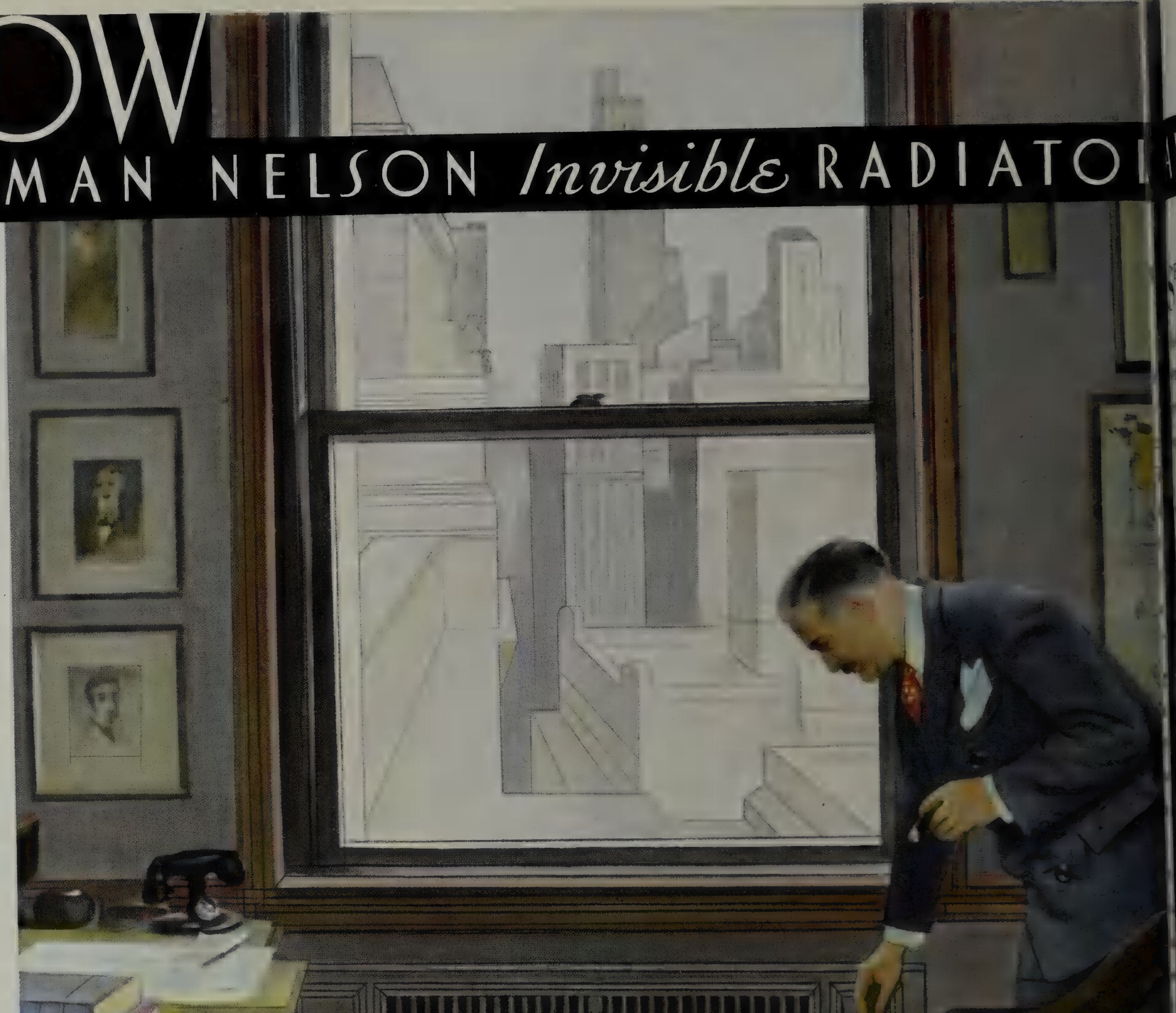
Architects and engineers, however progressive in spirit, naturally hesitate to quickly accept innovations. They have seen too many "cure-alls" come and go! They feel their responsibility to their clients. They are wary of fads and demand—results.

Having experienced the difficulties of pioneering for so many years—and having weathered them—we have, deep in our hearts, a feeling of gratitude for those far-seeing architects and engineers who have shown their faith in this organization; who have worked with us and fought for us, thereby making possible a mutual progress.

Today, therefore, when we announce a *new* Herman Nelson product, it is only fitting that we publicly register our appreciation to the architect for the expression he has so often voiced—"If it is made by the Herman Nelson Corporation, it is right."

NOW

ERMAN NELSON *Invisible* RADIATO



BEHIND THAT GRILLE IN THE WALL... THERE'S A RADIATOR THAT SAYS, "THIS BUILDING IS MODERN."

THE HERMAN NELSON

AVAILABLE *for* MULTI-STORY BUILDINGS

SEVEN YEARS AGO, when the Herman Nelson Wedge Core Radiator was incorporated in Univent ventilating equipment, there began a revolution in the design of all such equipment.

Four years later, in answer to insistent demands for a direct radiator incorporating this light but indestructible heating element, the Herman Nelson Invisible Radiator made its appearance.

The Invisible Radiator, "Immured" type, was expressly designed and built for installation behind the plastered wall where it would occupy no room space and, therefore, make possible better decorative and furnishing effects.

So satisfactory were results that this new-type radiator was adopted for thousands of residences and other buildings only a few stories in height, where separate pipe risers could be used and where controlling valves, traps, etc. could be placed on branches leading to these risers. In such buildings the problem of accessibility was not a factor. The Herman Nelson Invisible Radiator became known—and is still recognized—as the last word in radiator heating.

A request is answered

Because of the success of the Herman Nelson Invisible Radiator, in fine residences and similar buildings, this company has been consistently urged to adapt this radiator for use in multi-story buildings.

To meet this demand, it was necessary to provide access to controlling valves, thermostatic traps and pipe connections. We were unwilling, however, to recommend that our heating element be merely placed in a hole in the wall, or that it be encased or covered in some haphazard manner. Specialized heating experience of over twenty years and a determination to keep faith with our clientele would permit no compromise. We, therefore, bent our efforts upon perfecting a complete unit of scientific design and scientific construction.

After three years of consistent painstaking effort, both in our scientific laboratory and in the field of practical application, we have produced such a unit—the Herman Nelson Invisible Radiator, "Paneled" type, incorporating the identical durable heating element as our "Immured" type, but meeting the special installation requirements of larger and taller buildings.

Guaranteed ratings

The Herman Nelson Invisible Radiator, "Paneled" type, is designed, built and sold as a complete unit. Each radiator is given a definite guaranteed rating as compared with the ordinary cast-iron radiator. The heating element is enclosed in a sturdy steel case with an instantly removable front panel. A unique dust-proof telescoping arrangement is employed, eliminating the use of bolts or screws to keep it in place. The removable panel is complete with cast outlet grille and graduating damper. There is a self-closing door on each side of the grille. The doors give hand access to the radiator control valves.

An adjustable base and adjustable grounds for meeting varying thicknesses of floors, plaster or tile walls are provided.

Easy to install

We confidently believe that this radiator is as easy to install as a cast-iron radiator and that you will find it everything you could ask for in the way of appearance, accessibility, cleanliness and—trouble-proof heating results.

While this company has never built down to a price but always up to a standard, large scale production and scientific manufacturing methods bring this new-day radiator well within the economic grasp of all types of buildings.

Behind that grille in the wall . . . there's a radiator that says, "this home is modern."

CORPORATION MOLINE ILLINOIS

OUR CONTRIBUTION TO THE ART OF HEATING AND VENTILATION

The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their satisfactory performance. ✣ ✣ ✣ THE HERMAN NELSON CORPORATION, Moline, Illinois.

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1930, T. H. N. Corp.

HOW LONG WILL THE BEAUTY THAT YOU HAVE CREATED REMAIN UNSCATHED ?

IF, from the furnace room, comes a seepage of fumes bearing sulphuric acid, the inevitable product of coal combustion, or grimy vapors of any character, HOW LONG WILL THE BEAUTY THAT YOU HAVE PLANNED ENDURE?

Gas Heating protects that beauty.

Painted and varnished surfaces retain their freshness longest in the gas-heated home. Wall-papers, fabrics and rugs stay cleanest. Over-strenuous daily dusting and seasonal house cleanings do not take expensive toll of the original beauty. The harmony of line, surface and color that you have created does not suffer quick deterioration.

Whether or not your client has considered gas heating, your own artistry deserves that it be mentioned.

BRYANT GAS HEATING

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THE BRYANT HEATER & MANUFACTURING CO.
17817 ST. CLAIR AVENUE ·· CLEVELAND OHIO

3500 Interior Calls Per Day—

Amazing Increase in Interior Telephone Traffic Shows Enthusiasm for Strowger P-A-X

In answer to the modern vogue for color the popular Monophone may now be had, not only in black, but also in a variety of beautiful colors. Made of solid colored bakelite, with chromium or gold plated fittings.

It is costly to neglect interior calls.

Yet, such neglect is an evil common to practically all business organizations which are not served by an adequate automatic interior telephone system. There is always the tendency to store up matters that should be given immediate attention.

The record of a typical organization in which Strowger P-A-X was installed is a very clear example of this deficiency. Before the installation of P-A-X there were about 500 calls per day. In a few weeks after the installation of P-A-X the number had jumped to 3500 per day, indicating that ordinary facilities had been an impediment in the proper coordination of the various departments and many employees in the organization.

Possibly the most important evidence of the value of Strowger P-A-X in any project is the fact that it finds thorough usage by everyone . . . . and that generally the efficiency of the organization is seen to climb with the increase in number of interior calls. Strowger engineers will gladly make a survey of the telephone needs of any project calling for interior telephone equipment, without cost or obligation.

STROWGER AUTOMATIC
DIAL SYSTEMS

INCLUDE:

Public Automatic Telephone and Signalling Systems
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Code Signal Systems (Audible and Visual)
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Tele-Chec Systems (for theatres
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Marine Telephone & Signalling Systems
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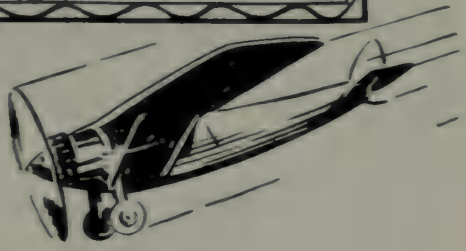
This Roof on the New DETROIT Municipal AIRPORT HANGAR



Five Acres of Featherweight Concrete INSULATING ROOF SLABS

This great new hangar at Detroit, marks the very latest trend in the design of airport buildings—a structural steel hangar with roof-deck of light weight precast concrete slabs.

Fire safety—permanence—no maintenance—why should any municipality or private corporation accept less than these as adequate return upon its hangar investment?

The development of Featherweight Concrete roof slabs has made possible, good construction with economy. Of Haydite aggregate in place of sand, these slabs *weigh as low as 10 lbs. per sq. ft. and usually go on the same steel frame* that will carry any other roof.

Several million square feet of Featherweight slabs have already been erected—on other hangars, aviation factories, industrial, railroad and public buildings. Interesting new "Catalog and Roof Standards" on request.

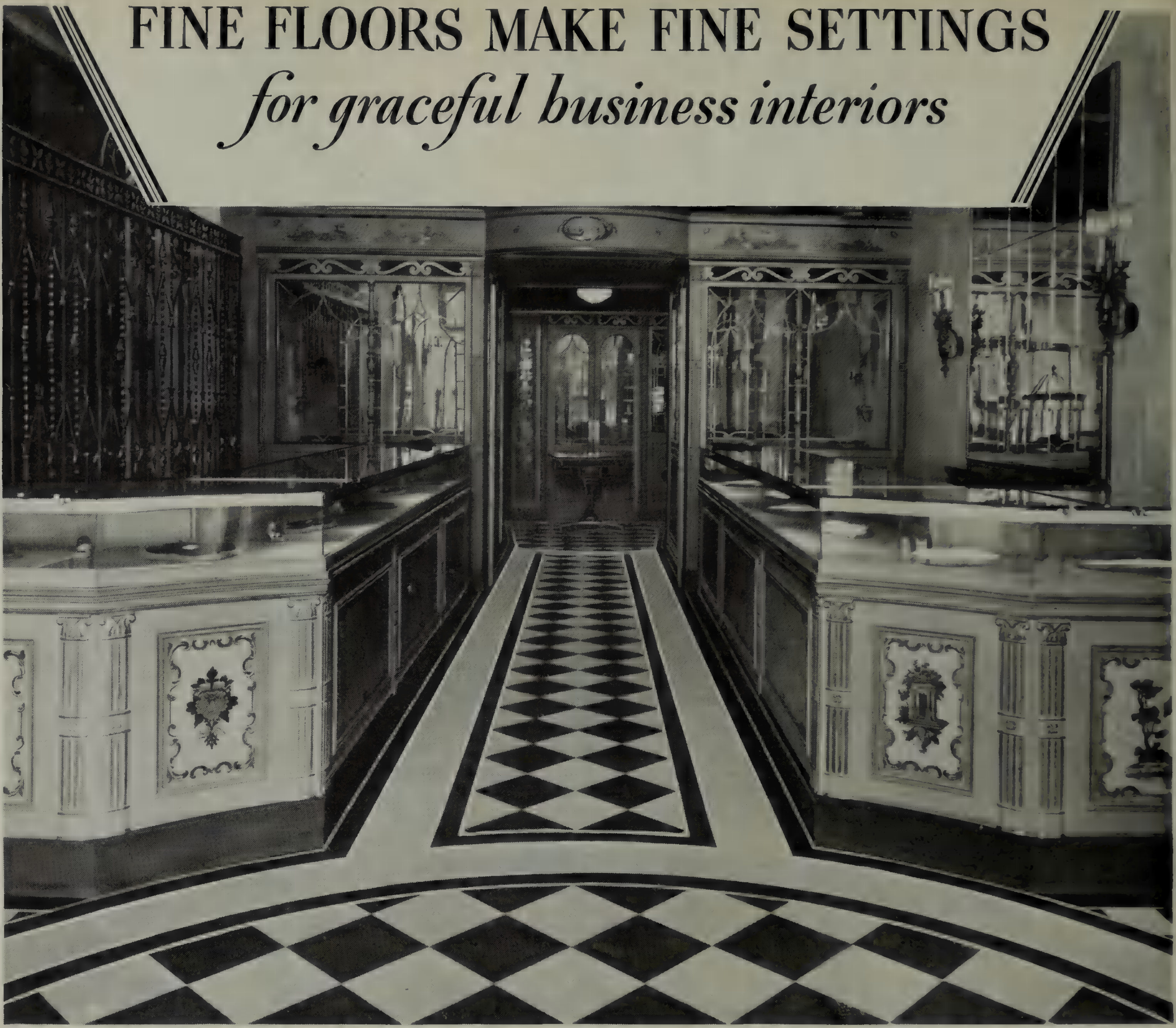
Made, Laid and Guaranteed by

FEDERAL CEMENT TILE COMPANY

608 South Dearborn Street Chicago

FOR OVER A QUARTER CENTURY

FINE FLOORS MAKE FINE SETTINGS
for graceful business interiors



H. W. Beattie Diamond Store, Cleveland, Ohio, chose this custom-designed floor of Armstrong's Linotile.

NO two diamonds are ever exactly alike. Each must have its specially created setting—one that most attractively sets it off.

No two fine interiors are ever exactly alike. So, each needs an individually created floor—one that most effectively brings out the decorative motif.

That explains, perhaps, why so many architects are choosing custom-built floors of cork. With Armstrong's Linotile, the architect is able to create a floor that will harmonize with any graceful business interior.

A jewelry shop—with delicately tinted walls and sparkling mirrors and ornamental bronze grilling? A hand-laid floor of gray and black Linotile to maintain the luminous beauty of the whole. A smart shop? A beauty salon? A fashionable restaurant? There is a floor of Linotile in keeping with each style of interior. For the architect's imagination is free to work with all the combinations of thirty colors in a score of variously sized tiles. Any pattern may be designed—any color scheme matched.

But the whole story of Linotile has not been told until its practical qualities have been considered. This hand-laid floor of cork is warm, springy, non-slippery. It is easily kept clean with an occasional waxing and polishing, and a daily dusting. And it is permanent—a long life and a colorful one.

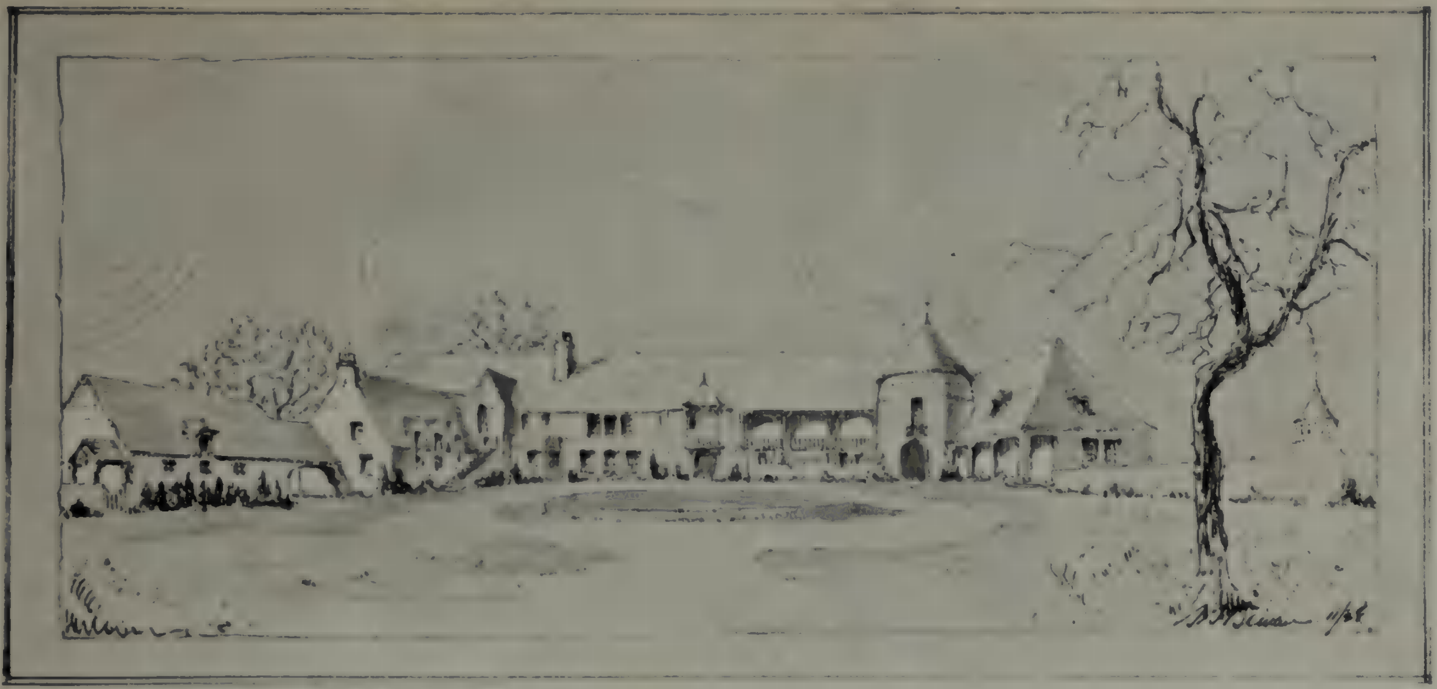
Write for our illustrated booklet, "Custom-Built Floors of Cork." It gives full information about Linotile, and about Cork Tile, another hand-laid Armstrong Floor. Address Armstrong Cork Company, Custom Floors Department, Lancaster Pennsylvania.

Armstrong's
The Mark of Quality

Armstrong's CUSTOM FLOORS

LINOTILE **CORK TILE**

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM



Architect's Sketch of the
ROLSCREENED RESIDENCE OF GEORGE B. EVERETT - - WINNETKA, ILLINOIS
Wells Bros. Construction Co., Contractors
S. S. Beman, Architect

". . . ROLSCREENS of Pella meet with my entire approval as a modern improvement in exceptionally fine window screening. I include them in my plans regularly without hesitation.

"Important to me in specifying 'Rolscreens' is the integrity and financial stability of the Rolscreen Company of Pella, which gives ample assurance to any guarantee they may offer."

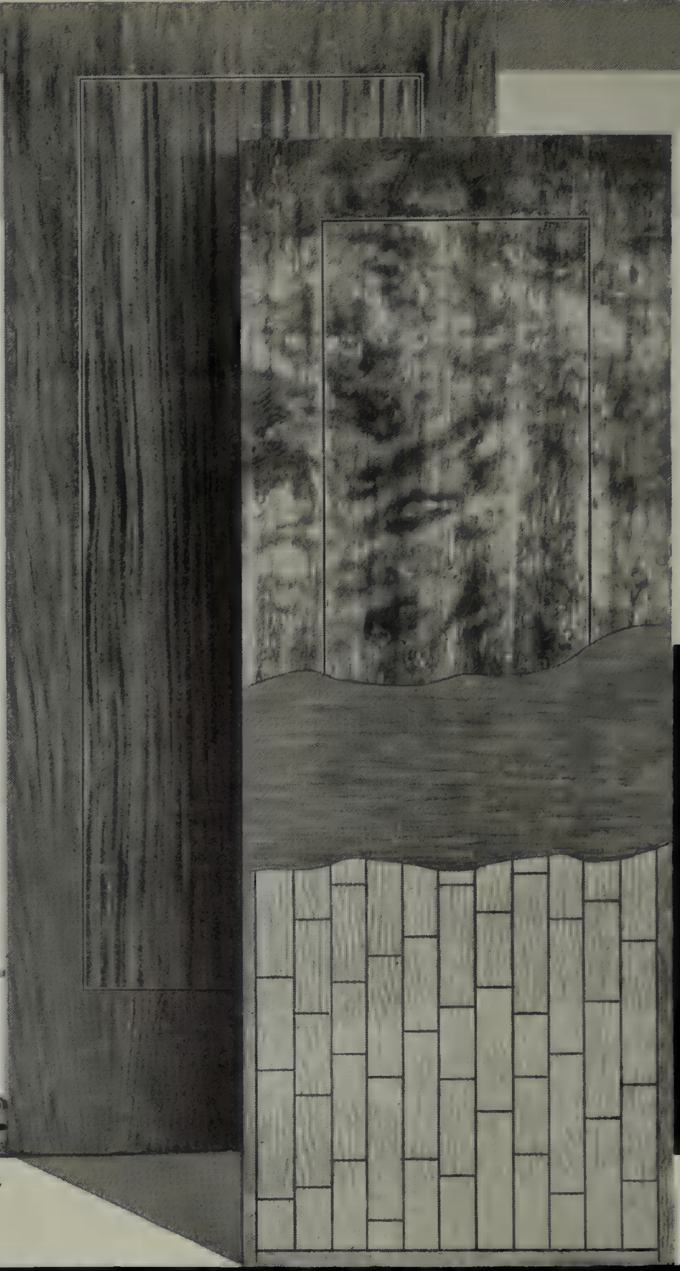
S S Beman

Mr. S. S. Beman, in accord with other leading architects of America, finds Rolscreens best suited for the screening of fine windows.

Rolscreens
TRADE MARK
PELLA IOWA

Rolscreen Representatives in all Principal Cities... See Sweets Catalog Volume B... Pages B2742-46

MANCHESTER MASONIC TEMPLE
Manchester . . . New Hampshire
C. R. Whitcher . . . *Architect*
Roddis Flush Doors



BISMARK BLOCK AND HOTEL
Chicago . . . . .Illinois
Rapp & Rapp . . . . . *Architects*
Roddis Flush Doors

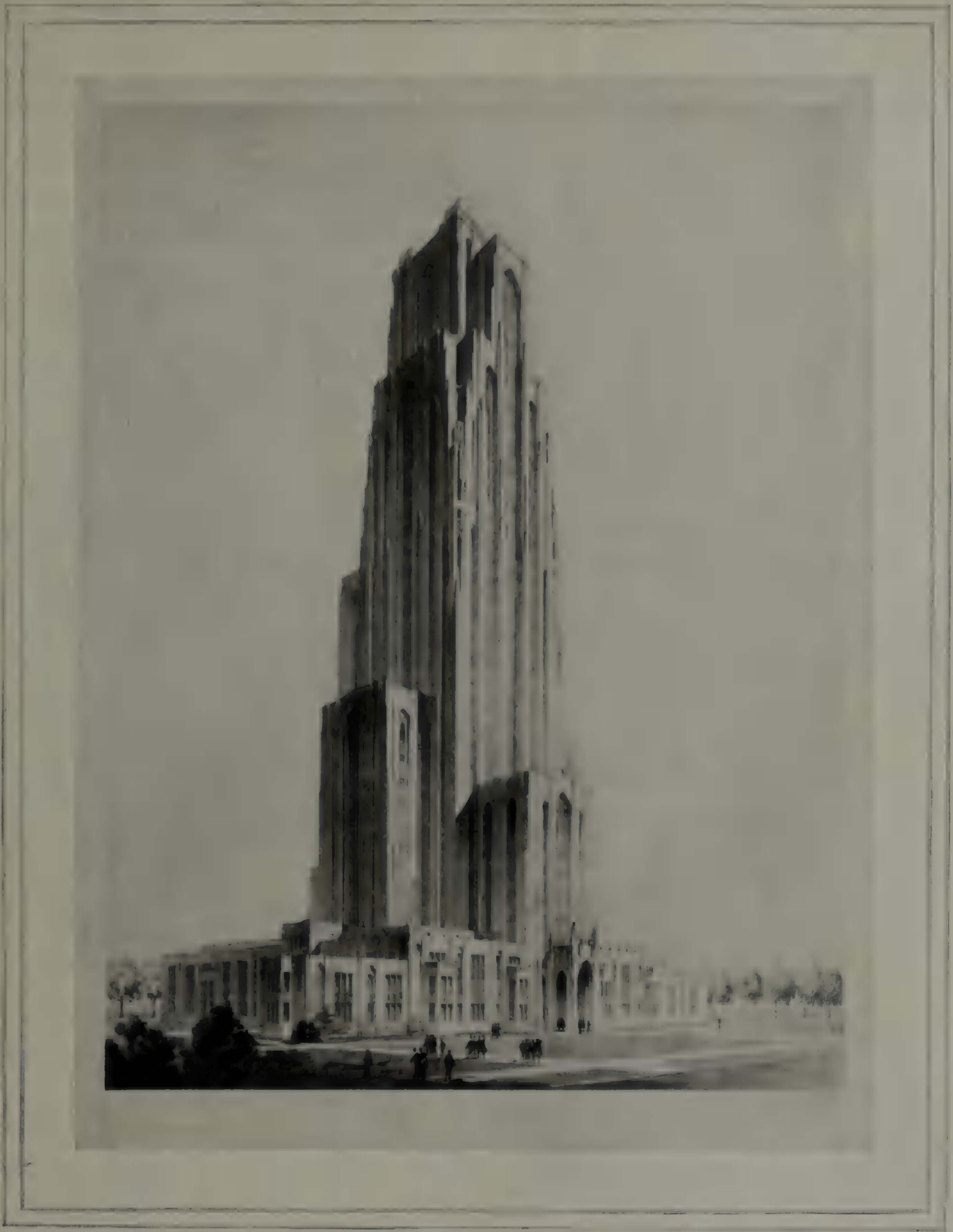
DOOR BEAUTY AND ADDED STRENGTH

Roddis Flush Door construction, as illustrated here, consists of (1) a soft wood core, (2) a horizontal grain cross band veneer on both sides and (3) a vertical grain surface veneer on both sides: with a hard wood edge strip on all four edges of the door. A 5-ply completely solid door, of standard weight and measurements. Added to that is a series of extra doweling, for further mechanical strength and durability: the strongest door made, the most correct door construction design and principle.

Roddis Flush Doors endure permanently, withstanding severest usage—and retain their beauty of appearance and fine finish throughout their long period of service: the handsomest door and the most economical door, as well as the most serviceable door. The interesting Roddis Catalog illustrates and describes all Roddis details, with a presentation of Roddis styles and some of the prominent installations made. Sent on request.

RODDIS LUMBER & VENEER CO.
134 FOURTH ST. *Established 1890* MARSHFIELD, WIS.
Distributors In All Principal Cities
Flush, French, Panel and Custom Built Doors

RODDIS FLUSH DOORS



Cathedral of Learning at the University of Pittsburgh. Architect, Charles Z. Klauder of Philadelphia. Contractor, Stone & Webster. Alcoa Aluminum Spandrels used. See next two pages for details.

1792 ALCOA ALUMINUM SPANDRELS FOR

MANY ADVANTAGES REALIZED

Weighing ⅓ as much as iron or bronze, Aluminum Spandrels bring tremendous weight reductions. The estimated total weight of the 1792 Alcoa Aluminum Spandrels used on the Cathedral of Learning is 129,000 pounds. Iron Spandrels, of similar dimensions, would weigh 3 times as much. 3 times as much weight to truck through city streets. 3 times as much weight to hoist. 3 times as much weight to handle in each operation, from the casting to the final setting in place on the face of the building.

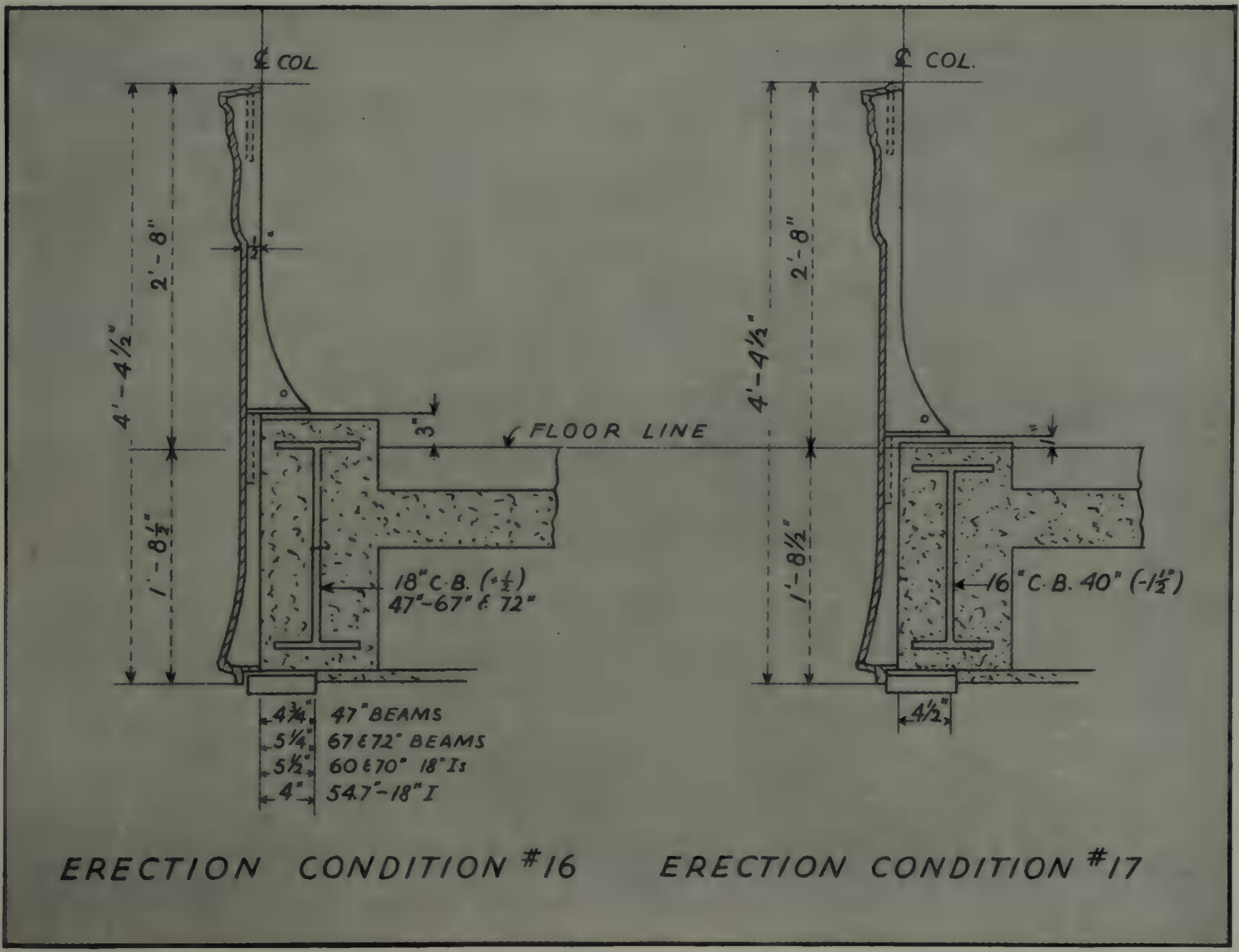
Alcoa Aluminum lends itself admirably to any character of design. It is readily workable. It need not be painted. It will not corrode. It permits the architect to plan a decorative effect that will endure as long as the building.

May we send you our booklet, "Architectural Aluminum." It describes and visualizes in an interesting way the many uses of Alcoa Aluminum in the Architectural Field. ALUMINUM COMPANY *of* AMERICA, 2467 Oliver Building, PITTSBURGH, PA., Offices in 19 Principal American Cities.

ALCOA ALUMINUM

PITTSBURGH'S "CATHEDRAL OF LEARNING"

SPECIFICATIONS



ERECTION CONDITION #16 ERECTION CONDITION #17

These Aluminum Spandrels shall be made of Alcoa No. 43 alloy, having a silicon content of 5%. The weight shall not exceed .097 pounds per cubic inch, and the average tensile strength shall be not less than 17,000 pounds per square inch.

The surface shall be sand blasted and given a deplated finish. The surface shall be free from imperfections and equal in all respects to the sample submitted.

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AND KEYSTONE RUST-RESISTING COPPER STEEL SHEETS

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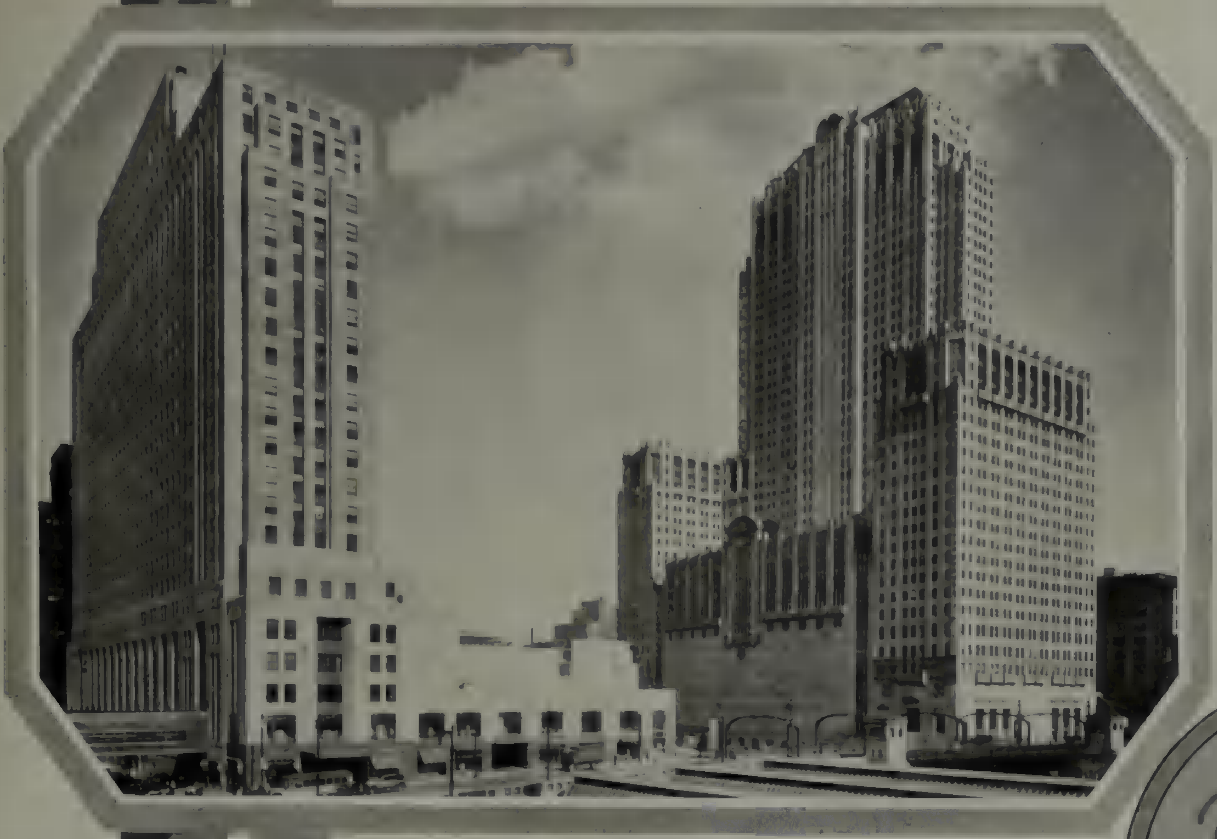
PRATT & LAMBERT VARNISH PRODUCTS



THE CHICAGO DAILY NEWS (Left) *Holabird & Root, Architects; Scott-Graff Company, Cabinet Contractors.* No. 20 WACKER DRIVE (Home of Chicago Civic Opera) West Madison St. and the river. *Graham, Anderson, Probst & White, Architects; Matthews Bros. Mfg. Co., Cabinet Contractors*

TRADE MARK
P&L
REG. U.S. PAT. OFF.

HERE are two noteworthy milestones in Chicago's progress. On the left is the recently completed building of The Chicago Daily News. Facing it is No. 20 Wacker Drive, where the Chicago Civic Opera makes its home.

It is a significant fact that "61" Spraying Lacquer was specified and used to preserve and beautify the interior trim of both of the new, commanding structures. This material dries almost instantly, which makes it invaluable where time is a factor in the finishing of any interior surface. In appearance and durability the use of "61" Spraying Lacquer is comparable to older methods, as many architects, owners and painters know.

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ELEVATOR ENTRANCES
by
DAHLSTROM

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◆ ◆ ◆

In the Smith Young Tower, San Antonio, Texas the Elevator Entrances are by Dahlstrom. Architect: Atlee B. and Robert M. Ayres, San Antonio, Texas. Contractor: McKenzie Construction Company, San Antonio, Texas.

DAHLSTROM METALLIC DOOR CO.
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Like this guiding light, Adamston is—

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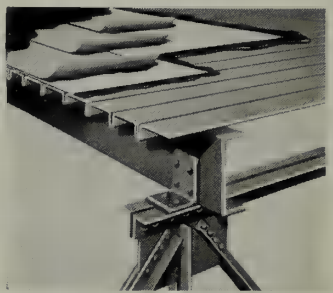

Cross section of Mahon Steel Roof Deck showing interlocking principle and the application of insulation and roofing material. This deck can be insulated to any degree to meet your specific requirements.

MATERIAL

Mahon Steel Roof Deck Plates are rolled from special, tight-coated galvanized copper-bearing steel, and require no painting or maintenance whatsoever. The bright galvanized ceiling surface, presented by Mahon Deck installed, is a desirable asset from a standpoint of light reflection.

STEEL Roof Deck, due to its extreme light weight, is unquestionably the most practical roof for any building where long span trusses are employed. This type of roof construction is already being used almost exclusively by progressive architects for airplane hangars, field houses, riding halls, arenas, auditoriums, theatres, churches, industrial plants, and other types of buildings demanding long span construction. Basically, light weight is the outstanding advantage of Steel Deck construction . . . . savings amounting to as much as 25% may be effected in the supporting steel alone. This, supplemented by the fire-safety and permanence of steel, makes Mahon Steel Roof Deck a very desirable roof for any building. When considering Steel Roof Deck, investigate the superiority of Mahon design, the gauge and quality of material from which Mahon deck plates are rolled, and the principle of load distribution through lateral continuity. Write for our complete data book and our folder, "Facts and Figures".

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MAHON

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Manufactured in Galvanized Copper Bearing Steel in either 18 or 20 Gauge

Mahon Steel Roof Deck installed on the Tennis Arena at the Brookline Country Club, Brookline, Mass.
Garvin Haddin, C. E., *designer*

AMERICAN STEEL & WIRE COMPANY

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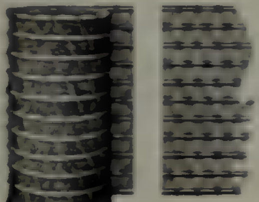
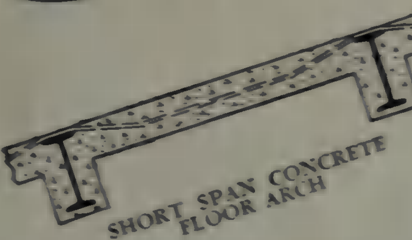
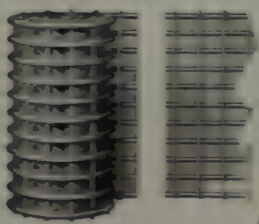


TRIANGLE MESH
Wire Fabric Reinforcement
Furnished in Rolls
or Sheets



SHORT SPAN CONCRETE
FLOOR ARCH



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Epoch making achievements in the Building Art meet the requirements of this age.

Sincerity of purpose is expressed in new simplicity that attains greater permanence and safety. Today's buildings, towering to new heights above the street must have protection against fire, load and vibration. The short span concrete floor arch, Wire Fabric Reinforced, is positive protection against these three elements.

American Steel & Wire Company Wire Fabric gives, as it has for over a quarter century, an even and effective distribution of the steel. On request we will gladly send you information on Wire Fabric for Concrete Reinforcement.

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LUCIUS TETER, RESIDENCE
Lake Forest, Illinois
Herbert Hugh Riddle, Architect
Chicago

FOR the convenience of all architects Wright Rubber Tile is illustrated in thirty colors, with complete data, in Sweet's Architectural Catalog. This same information in file size pamphlet form is available to contractors and will be mailed without cost or obligation.

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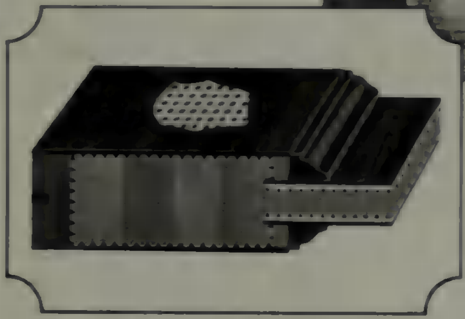

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ASBESTOS-INTERLINED
FIRE RETARDANT DOORS

Construction of Pyrono panel doors showing how the asbestos interlining is glued and indented to the core. Also made with flush surface.

▲

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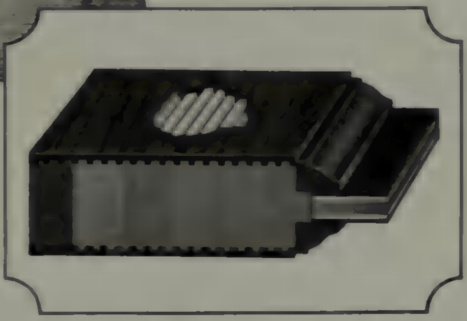
SOUND-INSULATED
DOORS

Satisfactorily meet sound retarding requirements



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Compound
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DOORS

Construction of Compound panel doors showing that glue surface between core and veneer is over double that of any other door. Also made with flush surface.

THE ONLY DOORS OF THEIR KIND IN THE WORLD

In these three types of doors are offered the very best that nature, skill and long experience can produce. They combine the beauty and enduring requisites that qualify them for many years of constant and severe use, in practically any building — anywhere.

For full description, refer to our catalog in SWEETS or write for descriptive circular prepared for architects' standard file.

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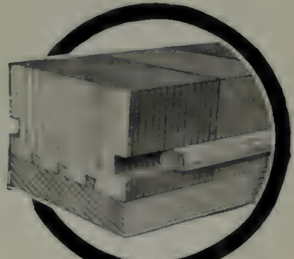

BLOX - ON - END comes to the job in 8 ft. lengths with small tough blocks dovetailed endwise onto base-boards. The end-grain fibres form the wearing surface. Also makes an ideal floor for gymnasiums.

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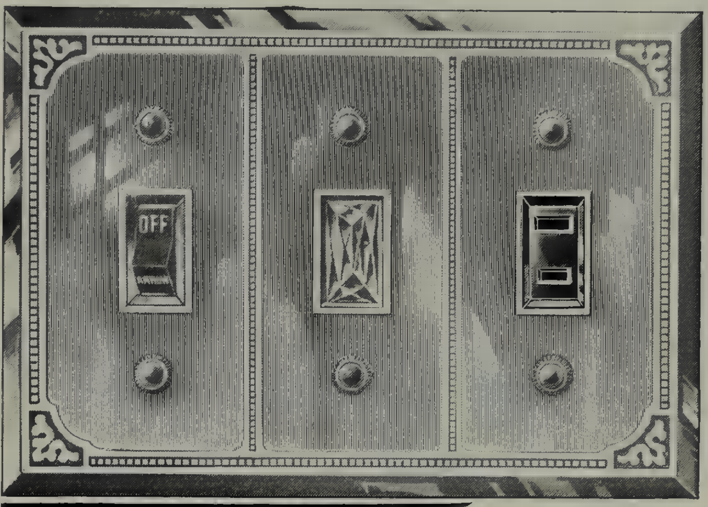
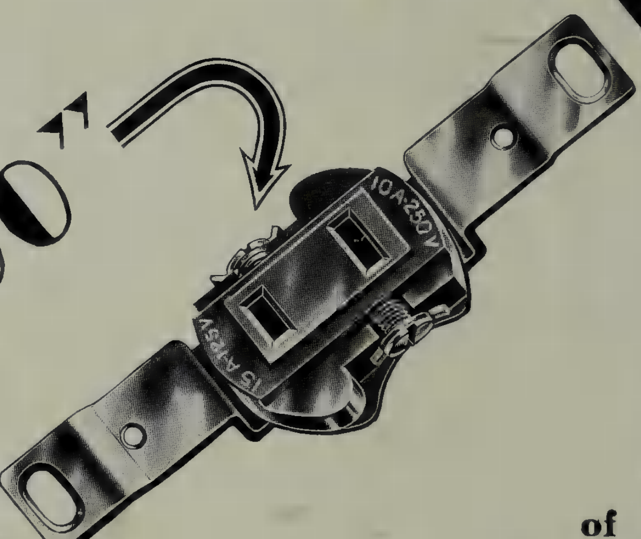


Tumbler Plate "No. 7700" a new Receptacle



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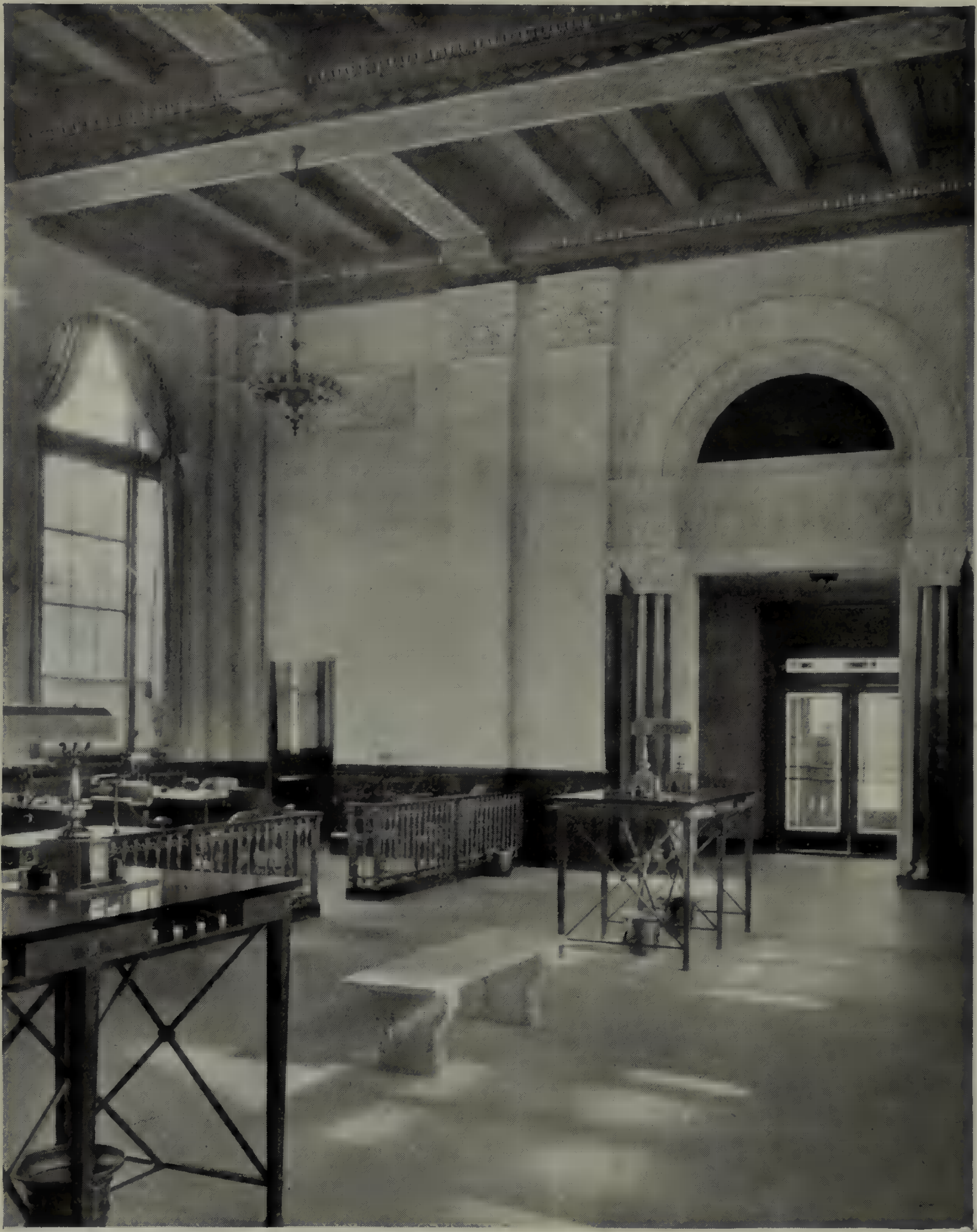
AUTHENTIC PLASTER ORNAMENT



Pelham National Bank—HOLMES & WINSLOW, *Architects*

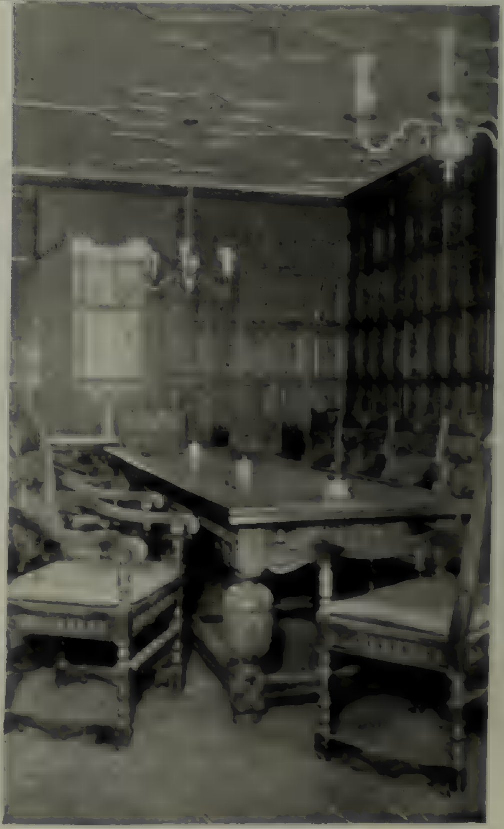
A Distinguished Suburban Bank

MODERN banks constitute one of the most distinguished fields for contemporary architectural effort. The Pelham National Bank, illustrated herewith, is in many ways typical of sound principles of design as applied to this type of building.

The walls of the main banking room, illustrated above, from floor to ceiling are done in pre-cast travertine—a fine example of the Byzantine influence in the north of Italy.

The directors' room at the right is paneled in Woodkast in the manner of the 16th Century woodcarvers. The linenfold panels are reminiscent of the exquisite work done by the artisans of the Elizabethan era. The ceiling is an authentic reproduction from Wilderhope Manor.

All of the modeling and casting of the interior plaster work was executed in our studios, partly from designs listed in our several catalogues.



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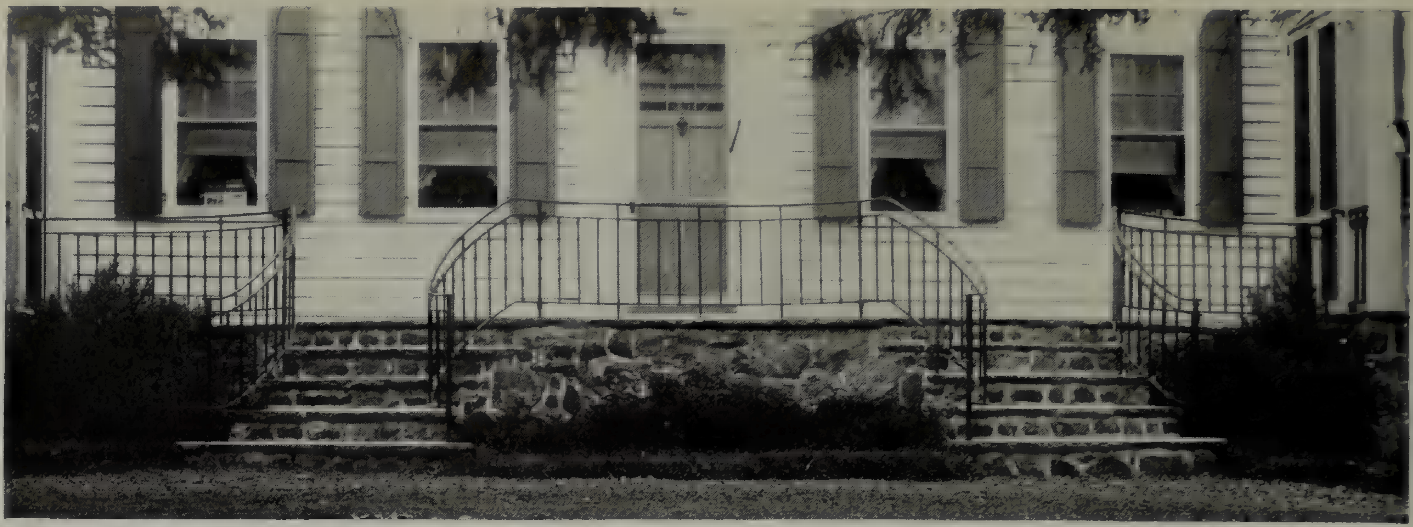
Board Room, Boston Lying-in Hospital; Miss Louise Zutter, Superintendent; Coolidge, Shepley, Bulfinch & Abbott, Architects, Boston.



Home of Charles Butler, Far Hills, N. J. Hyde & Shepherd, Architects

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"Metal work by FISKE" has become a familiar expression among architects whose confidence in the artistic and productive ability of FISKE has been bred in years of close cooperation. And FISKE points with pride to scores of owners completely satisfied with the artistic appearance, durable construction and perfect detail of its installations. Write for illustrated catalogue of ornamental metal work.

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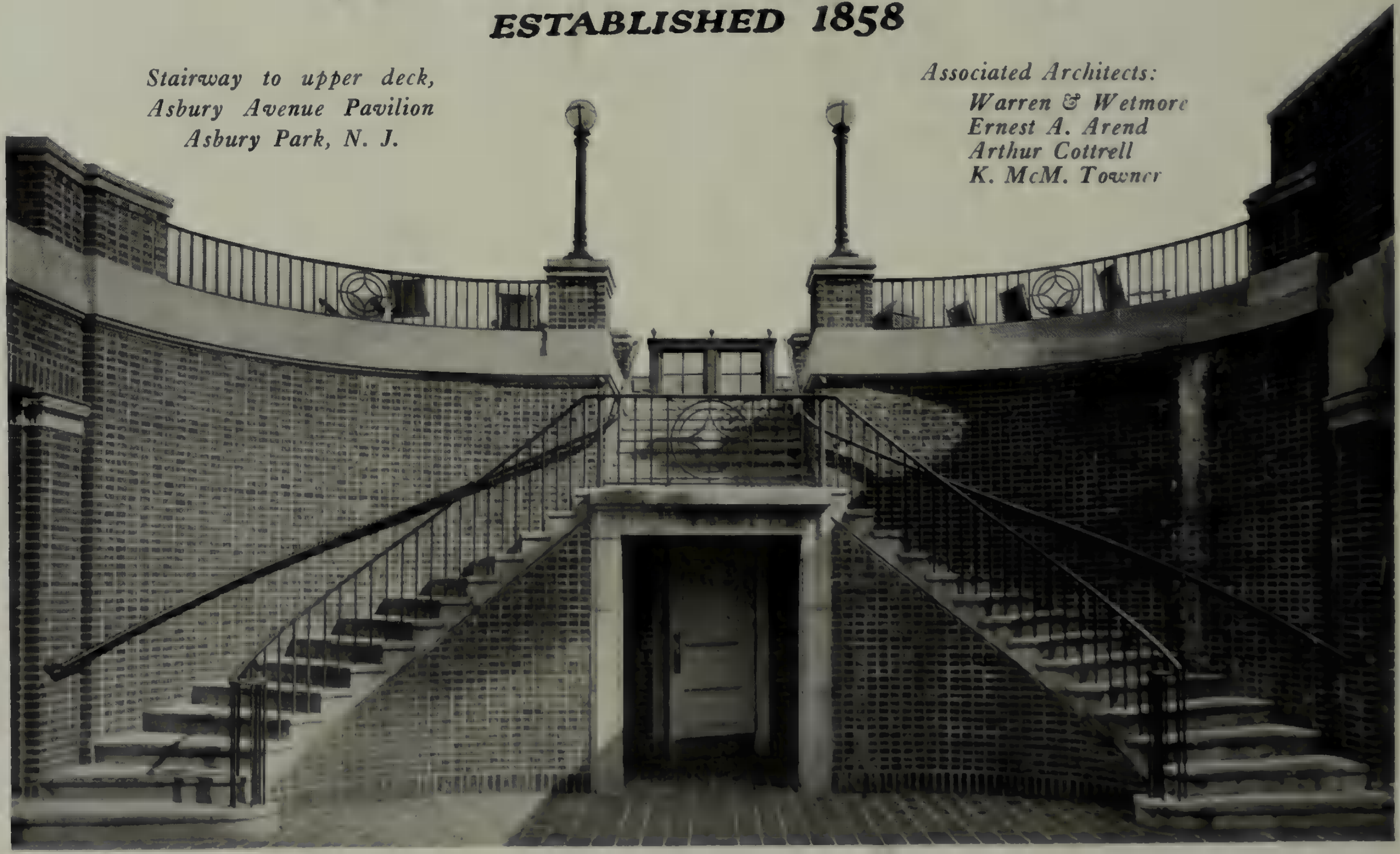
ESTABLISHED 1858



Stairway to upper deck,
Asbury Avenue Pavilion
Asbury Park, N. J.

Associated Architects:
Warren & Wetmore
Ernest A. Arend
Arthur Cottrell
K. McM. Towner

SPENCER CLEANED

Public Service Building, Pacific Power & Light Co., Portland, Oregon. A. E. Doyle & Associates, Architects.

Public Service Buildings

are the cornerstones of progressive activities and permanent serviceability. It is significant that the newest and biggest public service building in the West is equipped with the

Spencer Central Cleaning System

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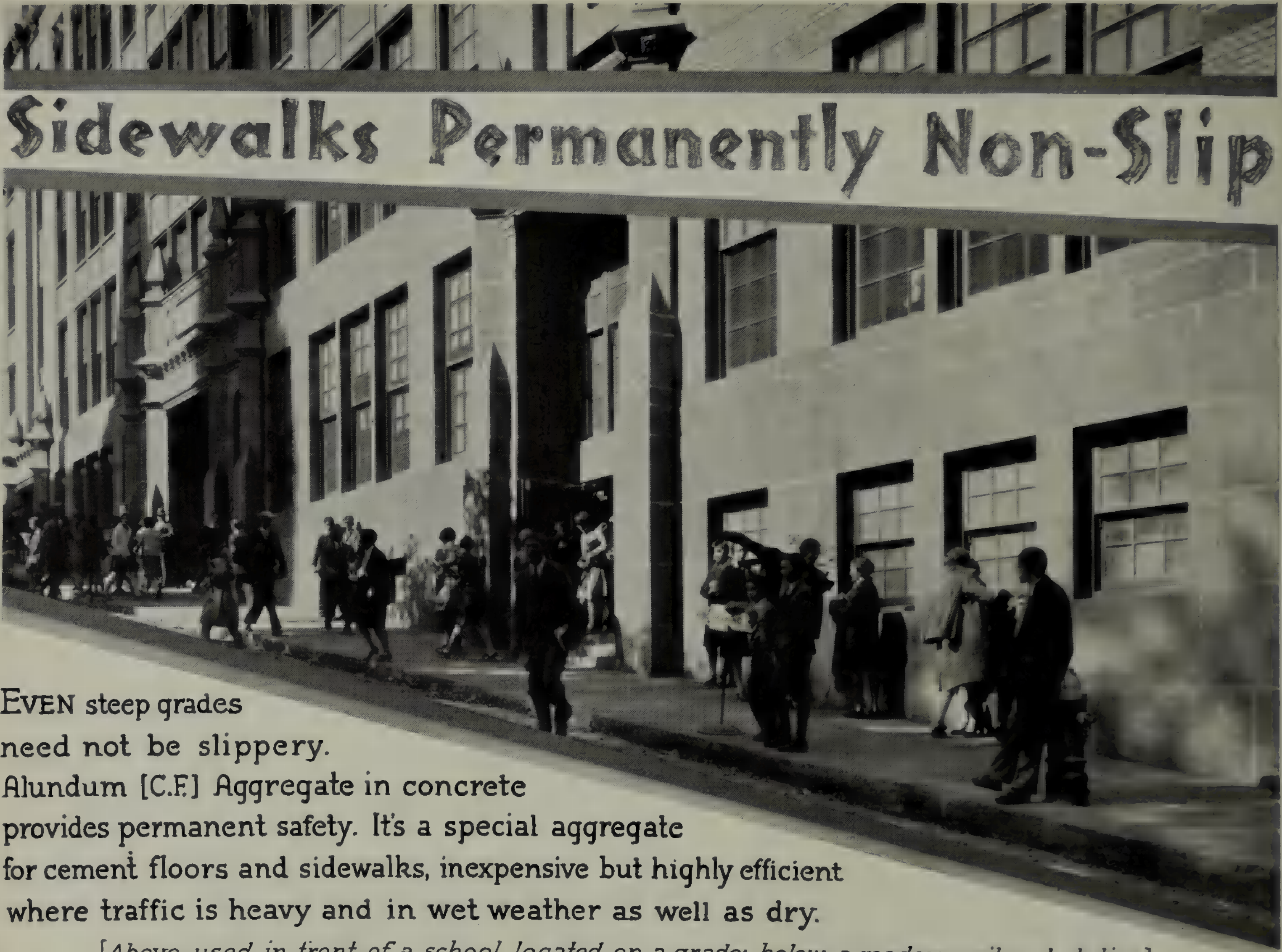
HARTFORD, CONNECTICUT — CENTRAL CLEANING SYSTEMS — REPRESENTATIVES IN 50 CITIES

Sidewalks Permanently Non-Slip



EVEN steep grades need not be slippery. Alundum [C.F.] Aggregate in concrete provides permanent safety. It's a special aggregate for cement floors and sidewalks, inexpensive but highly efficient where traffic is heavy and in wet weather as well as dry.

[Above, used in front of a school located on a grade; below, a modern railroad station.]

North Station and Boston Garden, Boston

NORTON FLOORS

Alundum Tiles, Treads & Aggregates

NORTON

NORTON COMPANY WORCESTER, MASS.

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ARCHITECTS, Builders, Engineers and Contractors are unanimous in their demand for exacting concrete specifications—most rigid design and control of concrete mixtures. The old hit-or-miss method is being rapidly discarded, and exact concrete specifications for all types of construction must be met.

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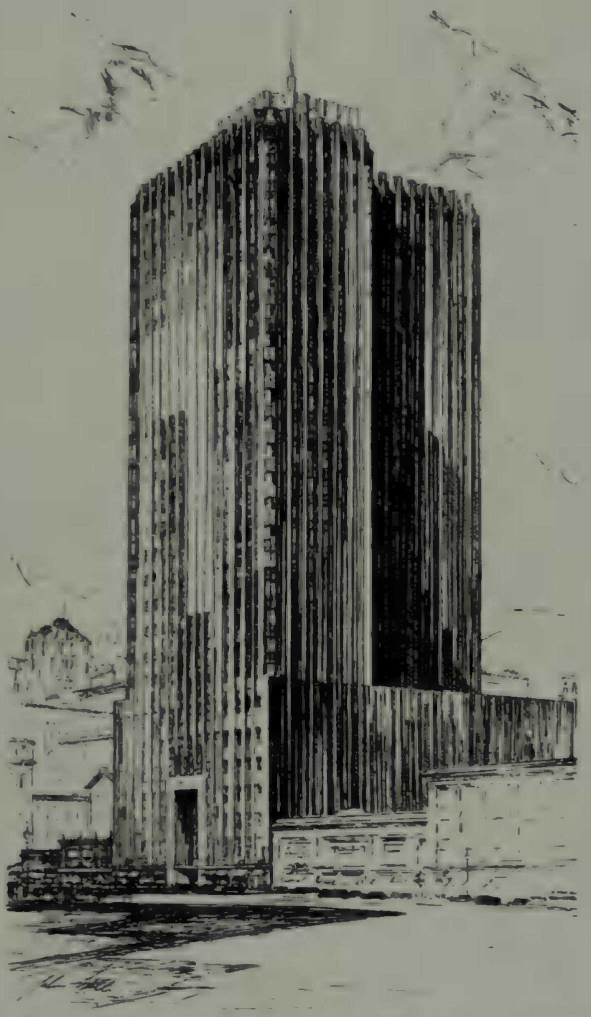
is the answer to the demand of the hour because every operation of weighing, measuring, mixing and delivering is controlled from start to finish; every batch is absolutely uniform in components, strength and texture.

CONCRETE technologists and testing laboratories have placed their stamp of approval upon TRANSIT System Mixed Concrete because it conforms in every respect to the new standards for strength, cement-water ratio, workability and uniform high quality.

Every specification for every type of construction, dry or wet mix in any amount, anywhere, is met by this remarkable new system for making and delivering quality concrete.



"Four-Fifty" Sutter Street, San Francisco; J. R. Miller & T. L. Pflueger, *Architects;* Lindgren & Swinerton, Inc., *Contractors;* 30,000 cubic yards of TRANSIT System Mixed Concrete furnished by Golden Gate-Atlas Materials Company.

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—makes it possible to furnish a continuous dependable supply of TRANSIT System Mixed Concrete on any and every type of construction; Buildings, Dams, Abutments, Highways, Sidewalks, Street Work, Curbs and Gutters, Foundations—any job where concrete is used.

Distance is no barrier—Paris TRANSIT Mixers go anywhere. There is never any possibility of segregation of materials in transit. Mixing is done and controlled enroute to the job, at the job, and while pouring.

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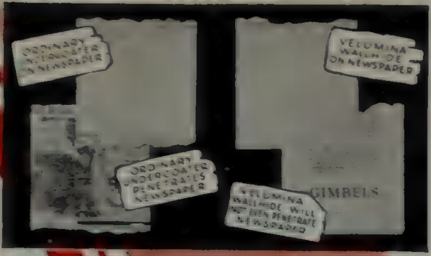
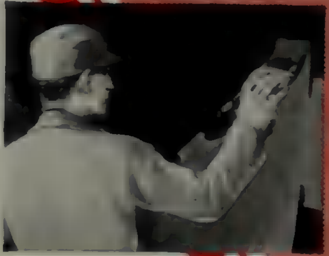
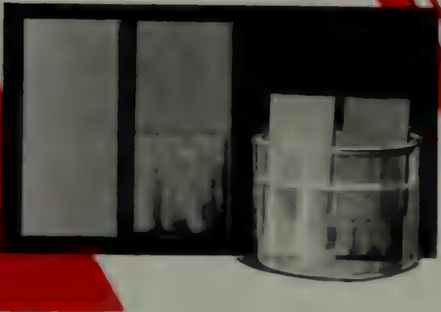
Seals
On Even the Poorest Surface


ORDINARY UNDERCOATER ON NEWSPAPER
VELUMINA WALLHIDE ON NEWSPAPER
ORDINARY UNDERCOATER PENETRATES NEWSPAPER
VELUMINA WALLHIDE WILL NOT EVEN PENETRATE NEWSPAPER
GIMBELS

Saves
Labor and Time



Resists
Alkali and Lime Action



NEVER before such a trouble-proofer for painting plaster — Velumina Wallhide First Coater that "holds itself out", sealing and surfacing against lime, moisture, alkali and absorption spots — and then Velumina Wallhide Finishing Coat, sealing and surfacing any skips of first coater, or where "nobs" of plaster have been broken off!

Velumina Wallhide
First Coater and Finishing Flat

Velumina Wallhide first coater is fine under any flat wall paint, but for greatest safety and insurance of getting the equal of three coat work in two applications use the Velumina Wallhide System. That's Velumina Wallhide First Coater followed by Velumina Wallhide Finishing Coat. Only six hours drying time needed in between!

Never, never before, such a spot stopper and trouble-proofer!

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Paint, Varnish and Lacquer Factories, Milwaukee, Wis. Newark, N. J., Portland, Ore., Los Angeles, Cal.

PITTSBURGH Proof Products
Glass-Paint-Varnish-Lacquer Brushes

Stop this ugly defacement caused by seepage.

CHENEY

INTERLOCKING WALL FLASHING

Does not break the bond

First View:

Severe seepage leaks have defaced both exterior and interior.

Second View:

Mason lays Cheney Flashing in mortar as quickly and easily as brick.

Third View:

Building architecturally spoiled by lack of thru-wall flashing.

Illustration Below:

A section of a 40 inch standard length Cheney Interlocking Wall Flashing.

CHENEY INTERLOCKING WALL FLASHING is a thru-wall copper flashing for Parapet and other masonry walls, so designed that when laid between two courses of masonry it forms a perfect mechanical key-bond in every direction.

This is true because Cheney Interlocking Wall Flashing is keyed both ways, the ends of the strips locking together to make a continous waterproof flashing.

Cheney Interlocking Wall Flashing comes ready-to-use and requires no special fitting, soldering, or loss of time. It is economical in cost and application, generally costing no more than ordinary copper flashing properly formed, soldered and set in place.

It is a known fact that thru-wall flashing prevents efflorescence, seepage and leaks, but heretofore Architects and Engineers have been reluctant to specify plain sheet metal flashing through masonry walls because the metal breaks the bond between the courses of masonry, thereby weakening the wall.

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Cheney Interlocking Wall Flashing has been approved on sight and adopted as standard by leading Architects, Engineers, and Contractors, wherever shown, and its use is rapidly spreading over the entire country.

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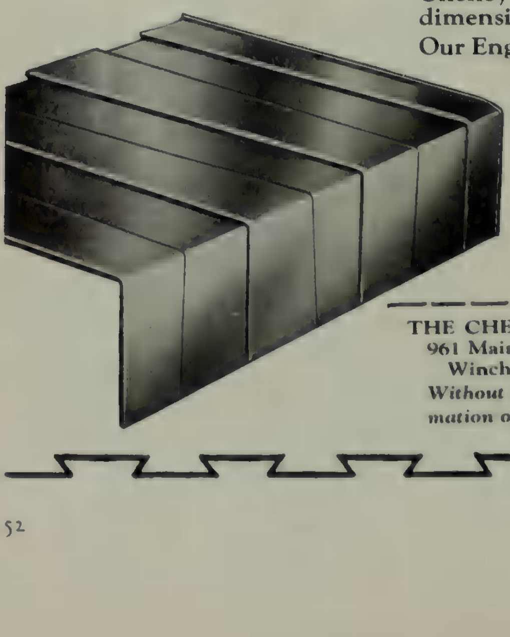
Our Engineering Staff has a large fund of valuable information on the uses of Cheney Flashing, which is available without obligation. Descriptive literature will be sent gladly, on request. *Mail the Coupon NOW.*



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PHILADELPHIA NEW YORK

THE CHENEY COMPANY A. R. F.
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Winchester, Mass.
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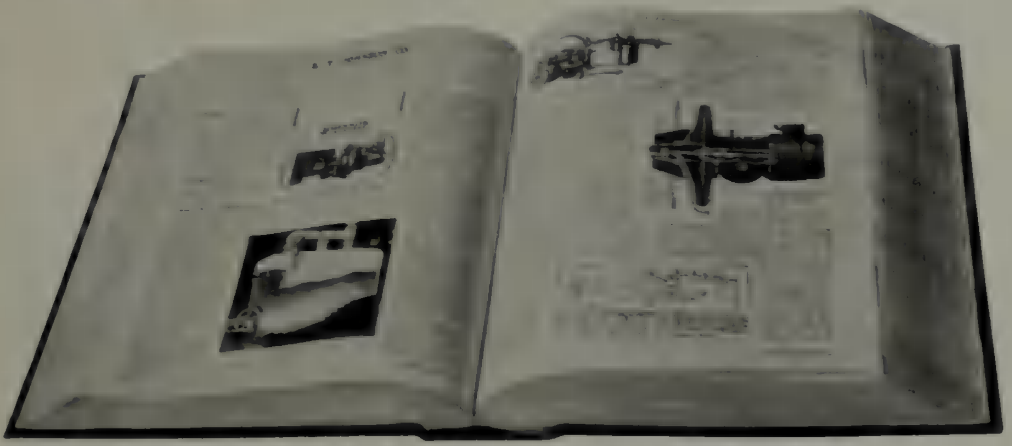
"For Every Heating and Power Purpose"



Complete information in Sweet's Architectural and Engineering Catalogues

YOU will find complete information about Johnson oil burning equipment on pages 502 to 504 of Sweet's Engineering Catalogue; also, on pages D-4655 to D-4658 in Volume "D" of the 1930 edition of the Architectural Catalogue. This makes it extremely easy and convenient for you to recommend and use the correct Johnson Oil Burner* to meet the heating and power requirements of every building in your territory, from the smallest residence to the largest hotel and public building, from the corner laundry to the seven-acre factory. There is no building too small nor no building too large for a Johnson installation.

The dependability, efficiency and economy of Johnson Oil Burners is best proved by the scores of thousands of satisfied users *plus* the fact that Johnson Oil Burners were awarded the Gold Medal at the Philadelphia Sesqui-Centennial Exposition of 1926, for precision methods of manufacture and perfection of design. You can safely recommend and use the Johnson Oil Burner with absolute confidence that it will give enduring satisfaction. For behind every Johnson Burner lies the experience of over 25 years in the installation and exclusive manufacture of oil burning equipment for every heating and power purpose.

The accumulated data of our 25 years' experience is available to you. Our Engineering Service Department will welcome the pleasure of assisting you in the solution of your heating or power problems.

We will also be pleased to send a copy of our catalogue, as published in "Sweets," for your files. Just write "*Bulletin* 4-B, *please*," on your letter head or business card (no obligation), and your copy will be sent without delay.

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Cast stone is a building stone molded from concrete in which the aggregate is especially prepared and selected for durability and appearance. The surface is cut or otherwise treated to produce any desired finish.

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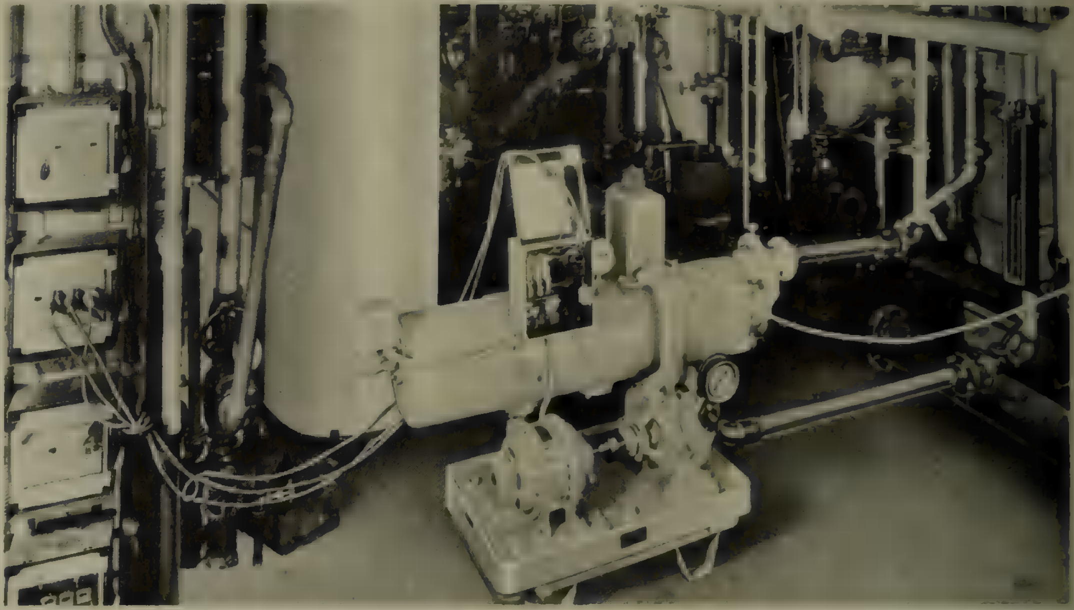
with square foot ratings

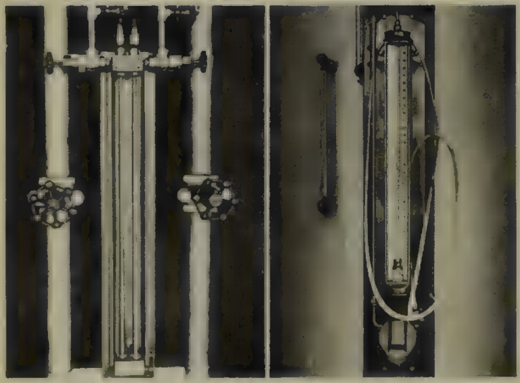
TESTED Air *and* Water Capacities

reveal the size of heating system a pump will serve



JENNINGS VACUUM HEATING PUMP ON TEST STAND

TWO factors determine the amount of radiation which a vacuum heating pump can serve satisfactorily and economically. The first is the maximum air and water capacity of the pump under working conditions. The second is the horsepower required to deliver this capacity.

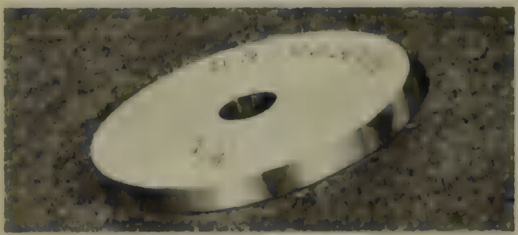


TYPES OF VENTURI METER AND VACUUM MANOMETER USED IN TESTING JENNINGS PUMPS

So, before rating such a pump in square feet of equivalent direct radiation, the quantities of air and water which it can handle and the horsepower it consumes should be definitely established.

Tests Determine Jennings Capacities

The combined air and water capacity of every Jennings Pump is carefully checked before the pump leaves the factory. The volume of water that the pump withdraws from the receiving tank under a prescribed vacuum and delivers under a specified head is accurately measured. At the same time the number of cu. ft. per min. of air that the pump removes from the receiving tank and discharges to the atmosphere is determined by means of a calibrated orifice. The pump is tested with its own driving motor. The horsepower required to deliver these maximum capacities is measured.



STANDARD TEST ORIFICE

Ratings Are Reliable Under Varying Conditions

Jennings ratings are reliable. The correct pump capacity for a given installation is influenced by the degree of tightness of joints and fittings, the efficiency of the traps, the cooling effect of the return piping and a score of other factors that vary and cause a large difference in the volume of condensation and air to be removed. Jennings ratings are backed by ample capacity to meet these varying conditions.

CAPACITIES OF
JENNINGS VACUUM HEATING PUMPS

Pump Size	Equivalent Direct Radiation Square Feet	Water Capacity G.P.M.	Air Capacity Cu. Ft. Per Min.	Orifice Diameter Inches	MOTOR HORSEPOWER			
					10 Lbs.	20 Lbs.	30 Lbs.	40 Lbs.
T	2,500	4	3	7/64	1/3	1/2	1	1 1/2
U	5,000	9	3	7/64	1/3	1/2	1	1 1/2
V	10,000	14	6	5/32	1	1	1 1/2	2
B	16,000	22	9	3/16	1 1/2	2	3	5
C	26,000	35	15	1/4	2	3	5	5
D	40,000	60	19	9/32	3	5	5	7 1/2
E	65,000	90	34	3/8	5	5	7 1/2	10
F	100,000	140	50	7/16	7 1/2	10	15	15
*G	150,000	200	102	9/16 & 5/16	10	15	UPON REQUEST	
*H	300,000	400	171	2-7/16 & 1-9/16		UPON REQUEST		

* The last two sizes are not of the manifold type

Exclusive Features Assure Dependability and Economy of Operation

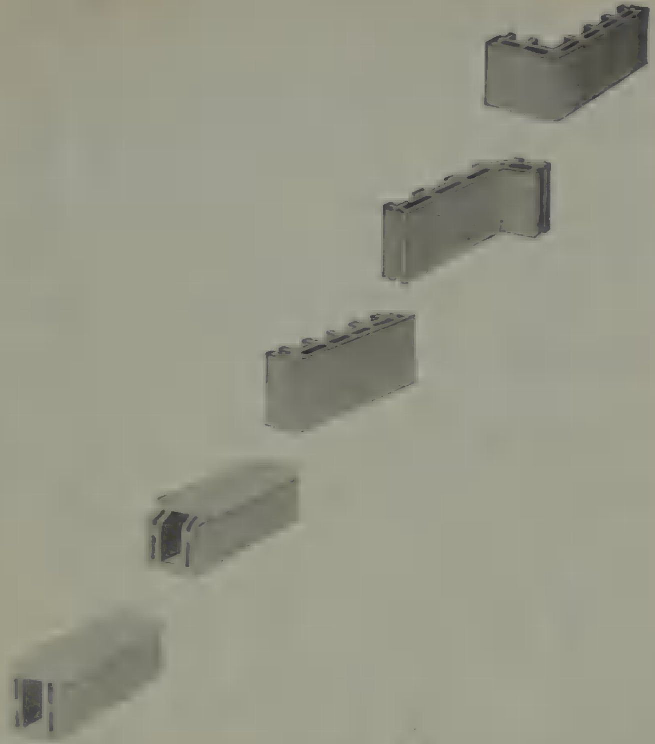
Jennings Vacuum Heating Pumps handle air and water separately. Air capacity is not affected when water also is being pumped. Water capacity remains constant when air is being handled. A Jennings Pump, with the capacities given in the table, will serve satisfactorily any reasonably well installed system of the size for which it is recommended, for the life of the building. Large capacity at low horsepower is afforded and economical operation assured because the condensate is handled only once. These features are found only in the Jennings Pump.

Certified Test Report

Certified test reports guaranteeing air and water capacities and horsepower provide a tangible basis for comparing heating pumps. Demanding these reports and substantiating them by a second test on the job promote good heating. Herewith is shown the Certified Report of Factory Test furnished to purchaser on request.

Jennings Pumps

NASH ENGINEERING CO.
SOUTH NORWALK, CONN., U. S. A.



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TURN TO SWEET'S

PAGE A559 A608

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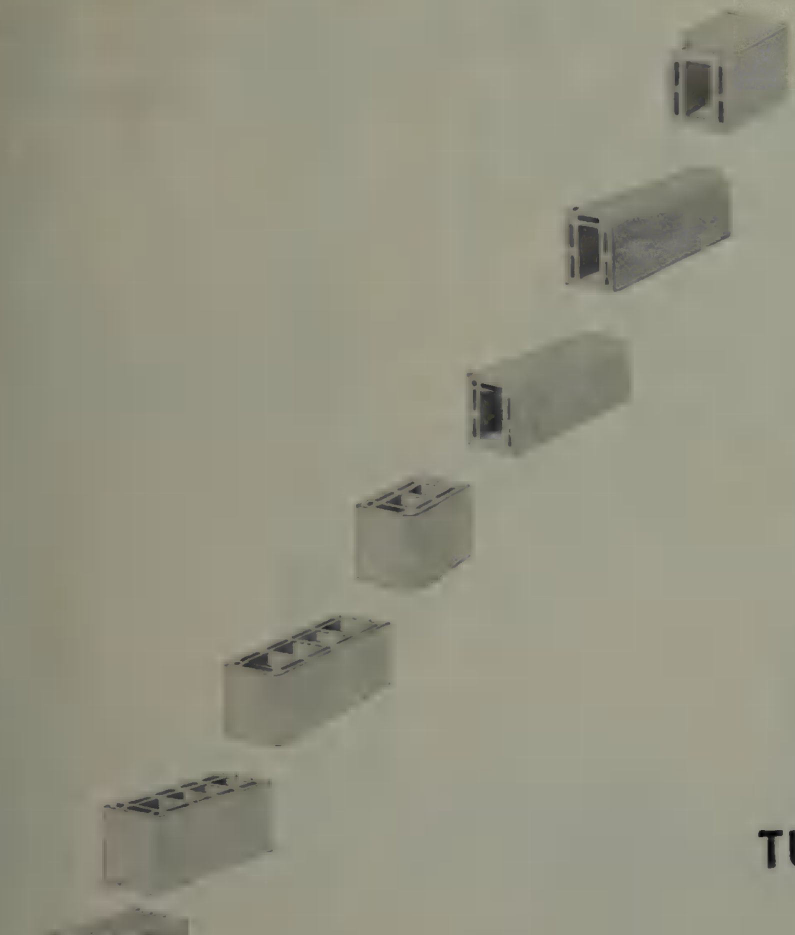

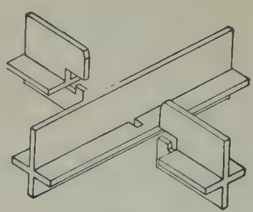

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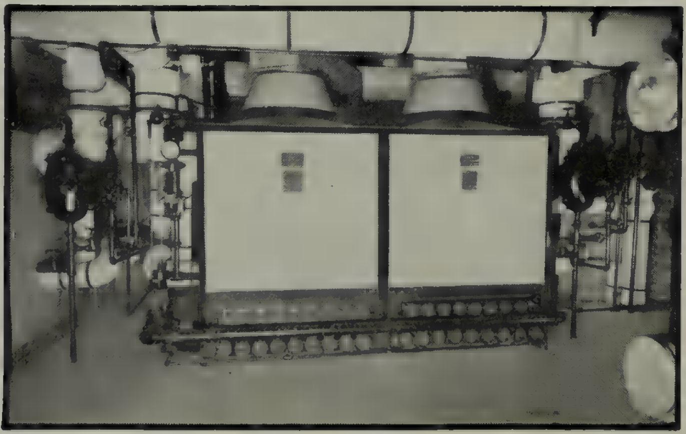

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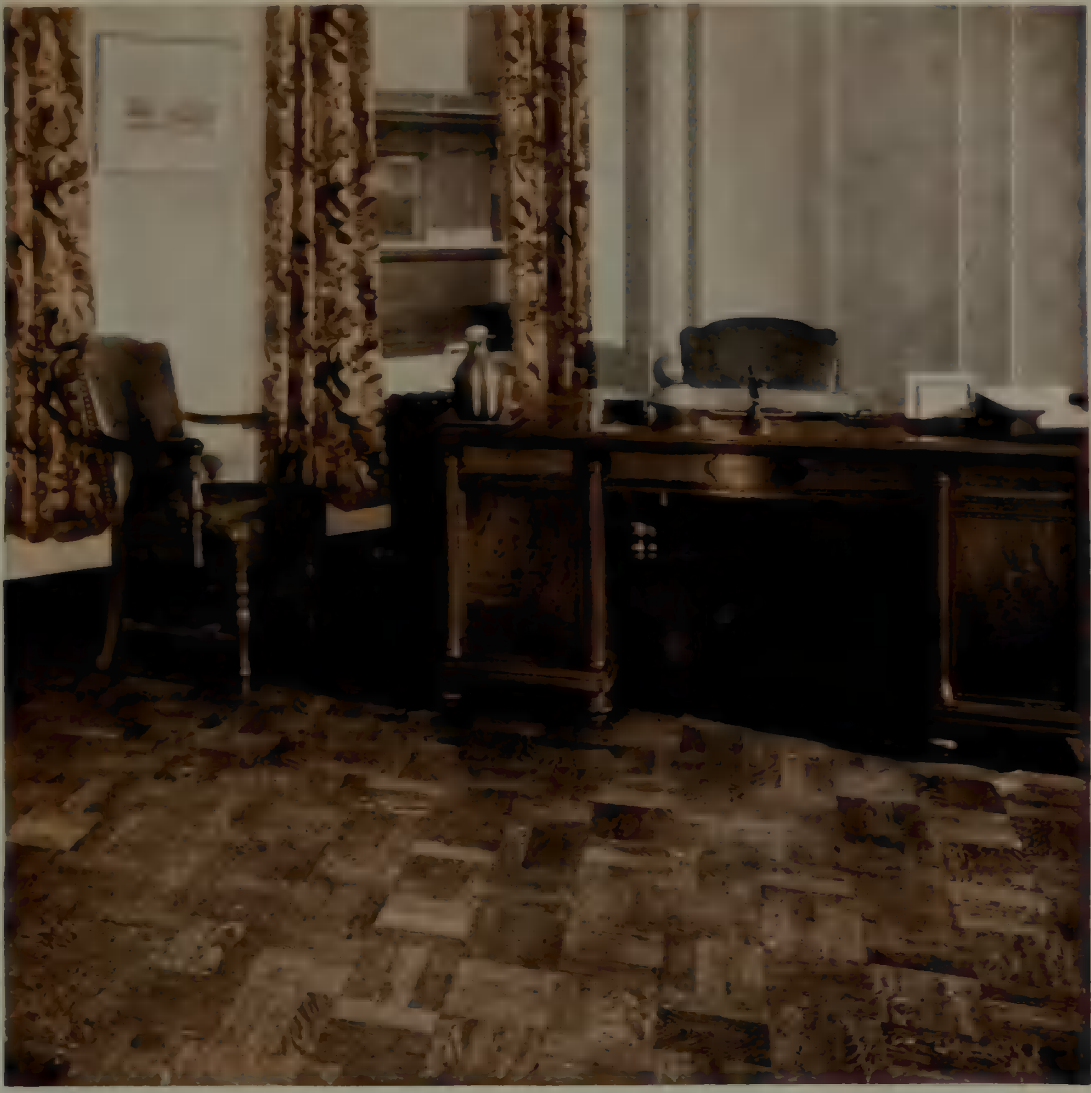

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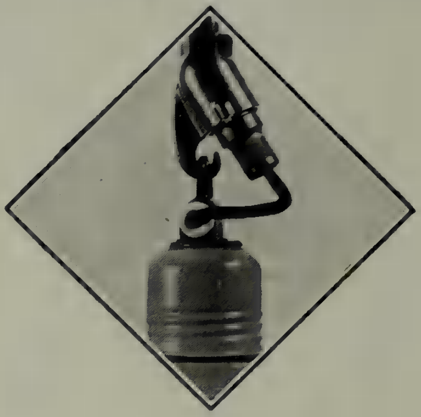

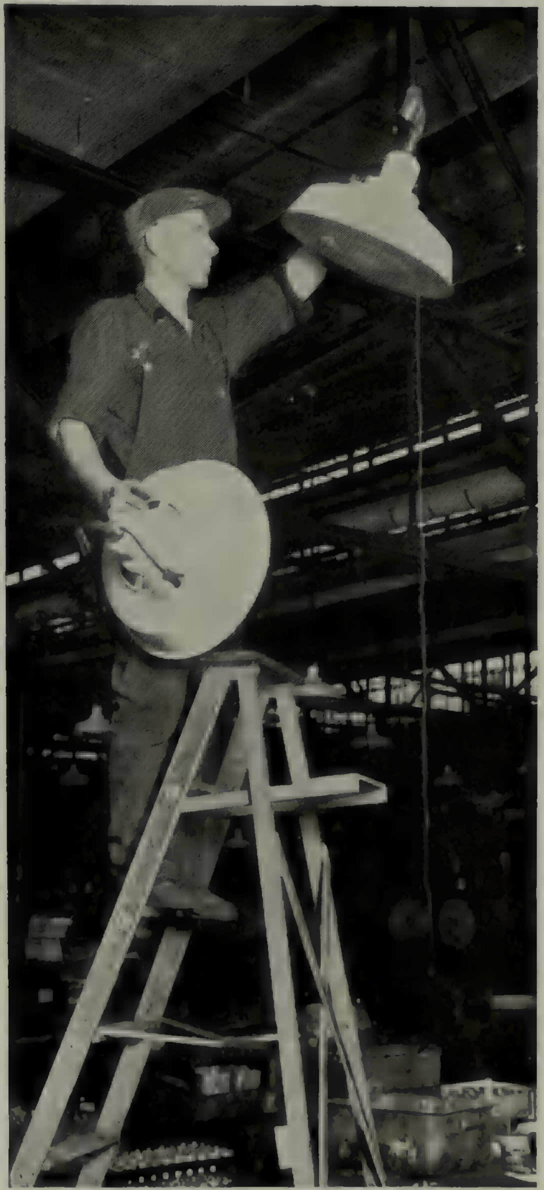

He cannot remove a unit without first disconnecting it from the line.

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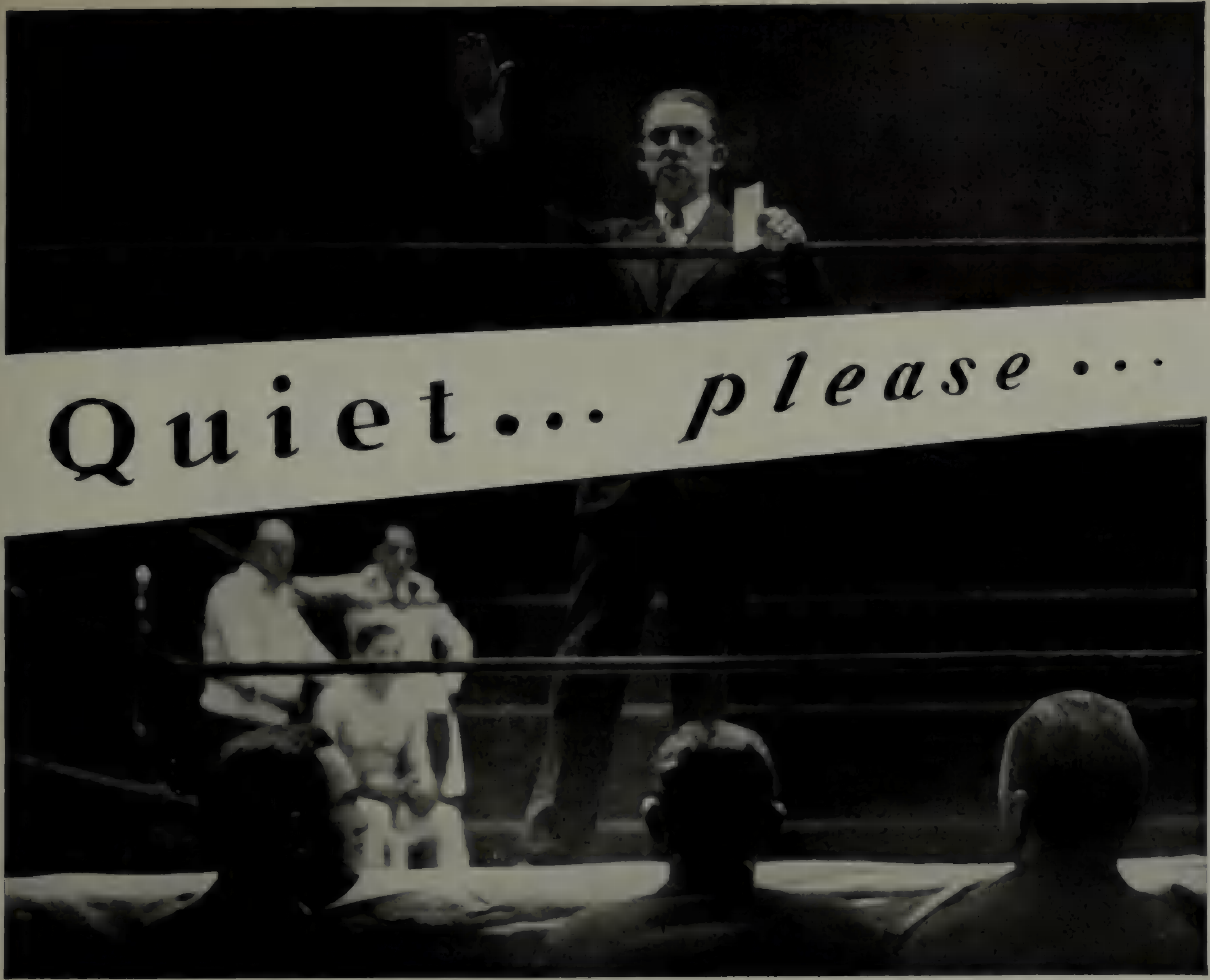
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*1024 vibrations per second.

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Architects: Phillip Sunderland and Edmund Watson
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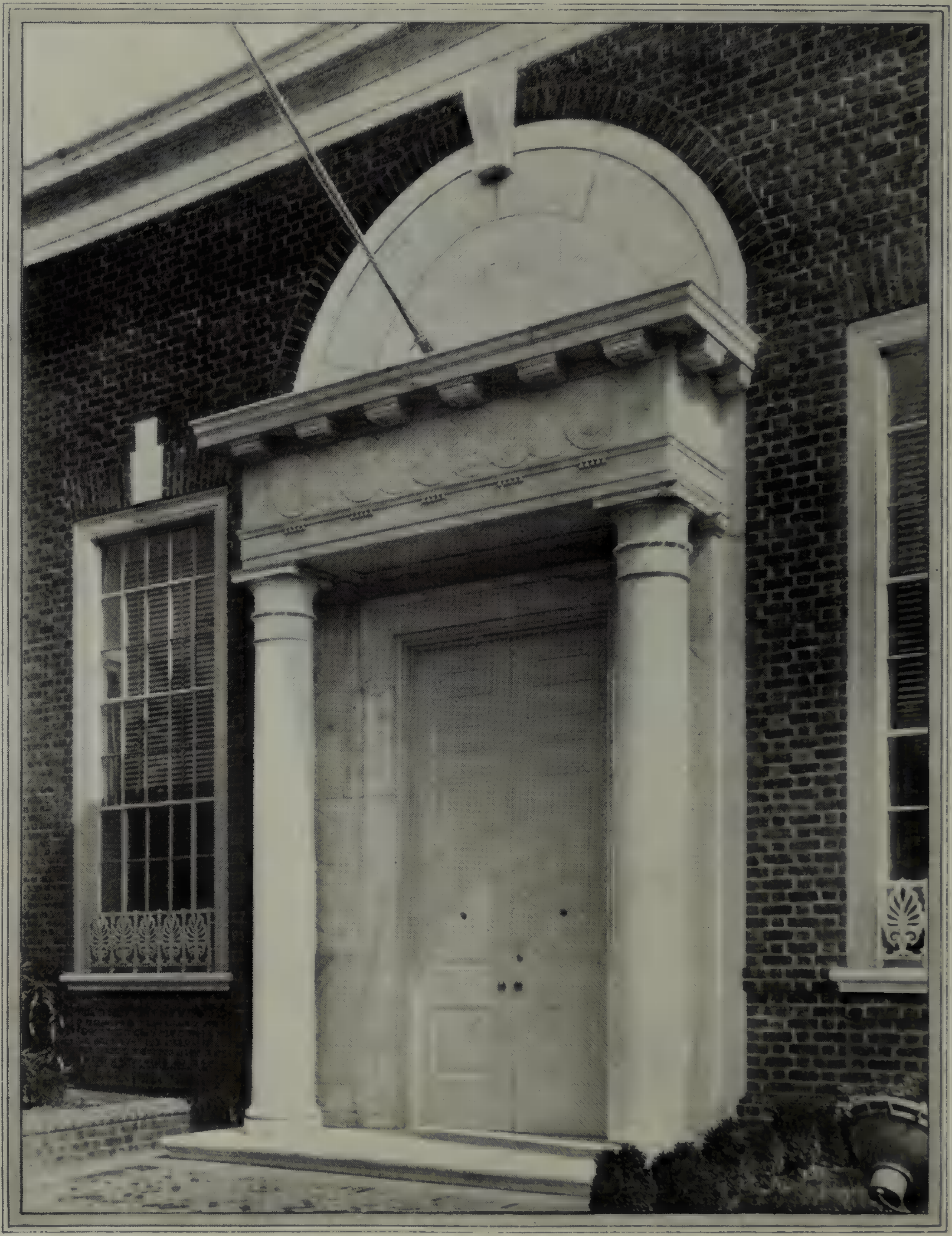

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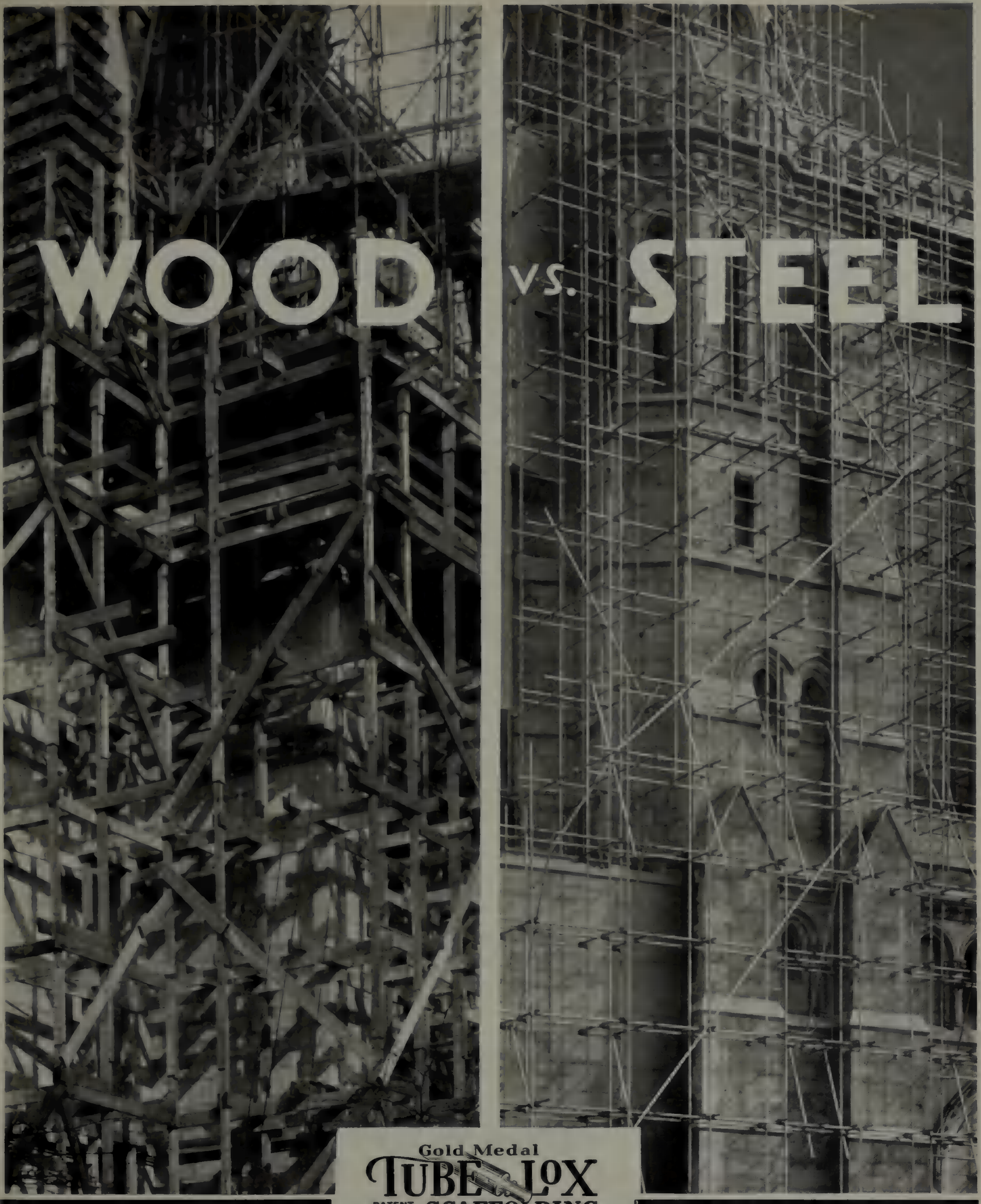

Gold Medal
TUBE-LOX
PATENT TUBULAR STEEL SCAFFOLDING

SAFEGUARD YOUR CLIENTS AGAINST THE FIRE HAZARD OF WOOD SCAFFOLDS

Specify Tubelox

THE PATENT SCAFFOLDING COMPANY

Chicago Boston Atlanta Philadelphia St. Louis San Francisco Pittsburgh New York City Detroit

The Palmolive Building, Chicago, Holabird & Root, architects, equipped throughout with Sargent Hardware.

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SARGENT

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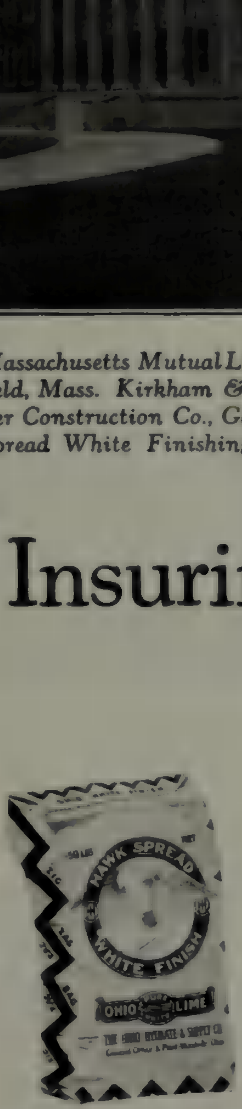
Massachusetts Mutual Life Insurance Bldg., Springfield, Mass. Kirkham & Parlett, Architects. Turner Construction Co., General Contractors. Hawk Spread White Finishing Lime used throughout.

Insuring the Walls and Ceilings

The home of an insurance company—a design of simple dignity that carries something of the staunchness of New England character.

And in the selection of construction materials the architect bought insurance for his client. He secured insurance on 70% of the interior surface by using Hawk Spread White Finish for the plaster material. That selection insured the permanence of the plaster work, insured the decoration placed on it.

Because this lime is made under constant laboratory control from the purest deposit of dolomite rock yet discovered on this earth, it preserves metal lath, improves acoustics and is economical because its extreme plasticity increases the mechanic's production.



Ohio White Finish is always delivered on the job in Red Zig Zag Bags, so marked to prevent error. It is marketed under four different brands, all of equal quality, all worthy of your specification—"Ohio"—"Buckeye"—"Woodville"—"Hawk Spread"

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Charter Member of the Finishing Lime Association of Ohio
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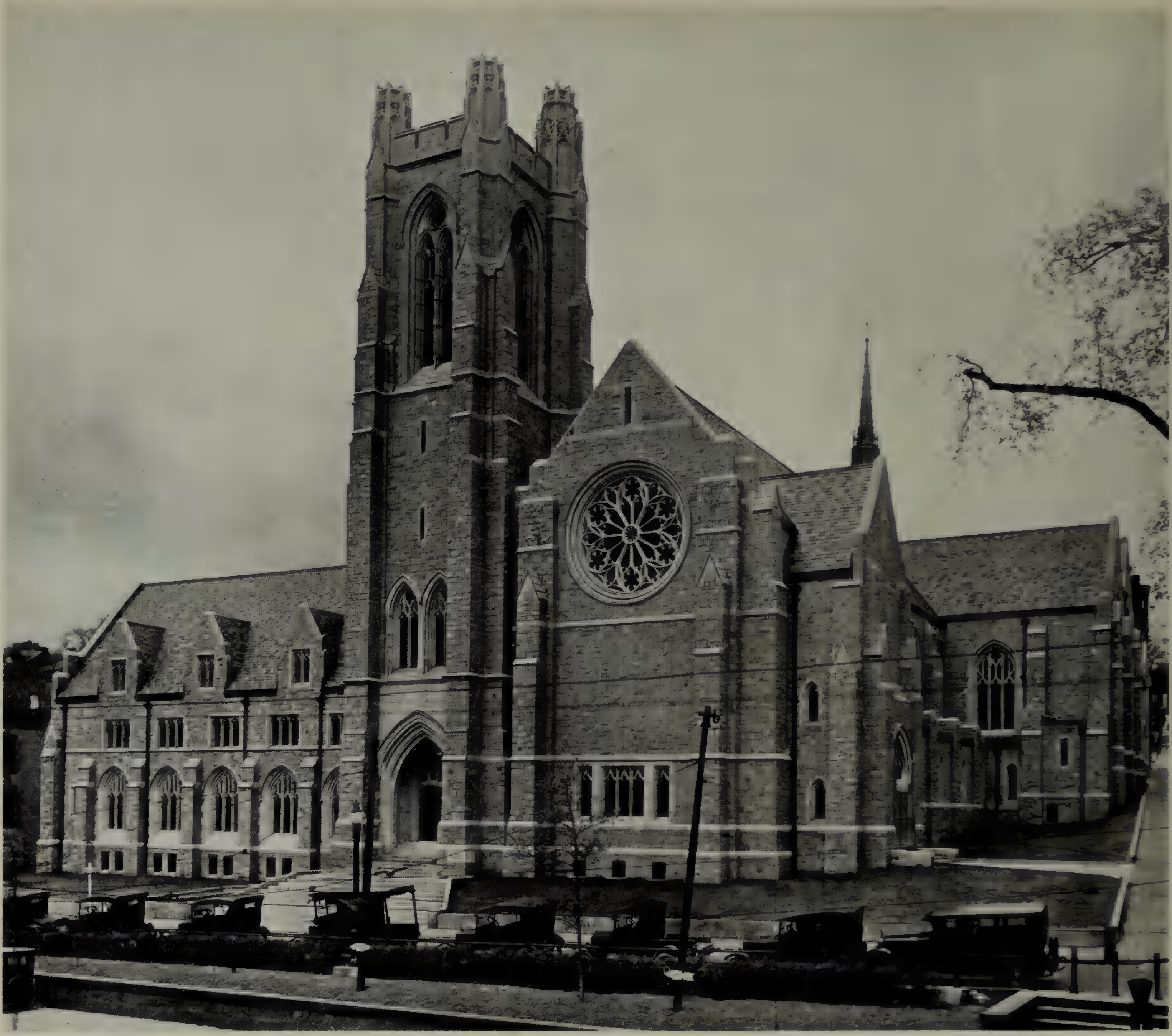

Façade of the Wesley Methodist Church at Worcester, Massachusetts. Entire building, exclusive of trim, is Bates Seam-Face Granite. The architects were Coolidge and Carlson and the builders were E. F. Miner Company

BATES SEAM-FACE GRANITE in rift, grain and texture is extremely favorable to economic working—a condition reflected in its cost, and enhanced by large-scale production with resultant savings to the purchaser. It is distinguished by a low coefficient of absorption and, by the flame test, shows up as one of the best of granites as regards scaling and cracking. We supply Split-Face as well as Seam-Face, and the colors range from deep browns and reds to light greens and greys, with intermediate tones of yellow, buff and orange. Our facilities for production and dressing are unusual, assuring prompt delivery regardless of quantity. We are represented in Sweet's Architectural Catalogues.

BATES BROS. SEAM-FACE GRANITE CO., INC.

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Another tribute to Quality

The NEW HOTEL DOUGLAS

NEWARK, N. J.

New Hotel Douglas, Newark, N. J.—Architect: William Lehman, Newark, N. J.
Decorating done by Bell Painting & Decorating Co., Newark, N. J.

...finished with **DUTCH BOY white-lead** *and Flatting Oil...*

For Newark's newest and largest hostelry, Hotel Douglas, it was almost inevitable that Dutch Boy white-lead and flatting oil should be specified.

The selection of Dutch Boy for this exacting job is another tribute to the excellence of this high quality paint. An excellence that has made Dutch Boy the outstanding choice of architects, building owners and decorators wherever beautiful interiors are desired.

No Laps...No Joints

Dutch Boy white-lead and flatting oil make a paint that combines beauty and practicability in an ideal way. It gives a beautiful flat finish free from laps, joints and brushmarks...It gives a finish that is durable and assures maximum wear...It can be tinted to any color individual requirements demand.

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New York, 111 Broadway · Boston, [redacted] Albany Street
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San Francisco, 235 Montgomery Street · Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue
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The pigment of this paint remains insoluble in water...does not change chemically...does not wash off and leave streaks. Thus, even after long service, it can be safely washed with soap and water time and time again.

Mixed to Order

This pure all-lead paint is particularly adaptable because it is mixed to order for every job. It enables the painter to obtain the exact tints necessary to carry out the architect's color specifications. It can be mixed to produce egg-shell as well as flat finishes. It makes possible the use of many interesting treatments, such as the crumpled roll, the sponge mottle, Tiffany and plastic finishes.

Let us send you a booklet, "Decorative Possibilities of Paint", which describes several of these finishes. We shall also be glad to send any architect a complete specification book containing formulas for all coats and finishes. Address branch office nearest you.

Produced with Dutch Boy white-lead and flatting oil this beautiful finish may safely be washed even after long service.

"Save the surface and you save all"

DUTCH BOY

WHITE-LEAD
and
FLATTING OIL

Fire Loss Weight Time Money

Save with Steel

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STEEL roof decks, from the day they are specified, start rolling up genuine savings. Their light weight permits the use of correspondingly light supporting members such as roof purlins, trusses and columns.

Coupled to this initial saving, is the fact that properly insulated steel roof decking prevents heat loss under extreme temperature changes, thus saving in heating equipment costs.

The savings do not stop here, however. The amount saved in fuel consumption alone, in cold climates, over the first year period, is almost enough to pay for the cost of the steel decking.

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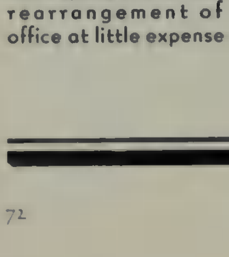
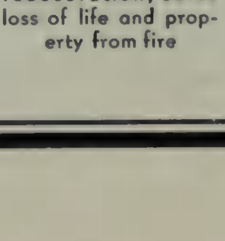
STEEL SAVES IN MANY PLACES

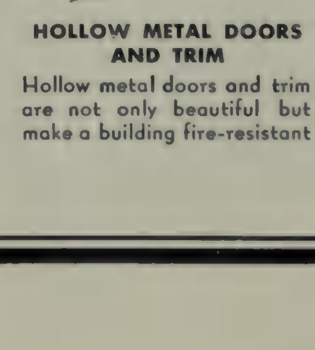
Architects, engineers and construction men are, more and more, advocating the use of steel to promote greater savings. Steel lath, steel floor forms, steel trim and doors; in literally a thousand and one places steel is being specified to save in initial cost and to guard against deterioration from fire and high maintenance cost. You can obtain information on any of the many steel products by writing to Trade Research Division, National Association of Flat Rolled Steel Manufacturers, Terminal Tower Building, Cleveland, O.



STEEL PARTITIONS
Steel partitions save floor space and permit rearrangement of office at little expense



STEEL LATH
Steel lath saves plaster cracks and expensive redecoration; saves loss of life and property from fire



HOLLOW METAL DOORS AND TRIM
Hollow metal doors and trim are not only beautiful but make a building fire-resistant

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The Specification For Sanitation

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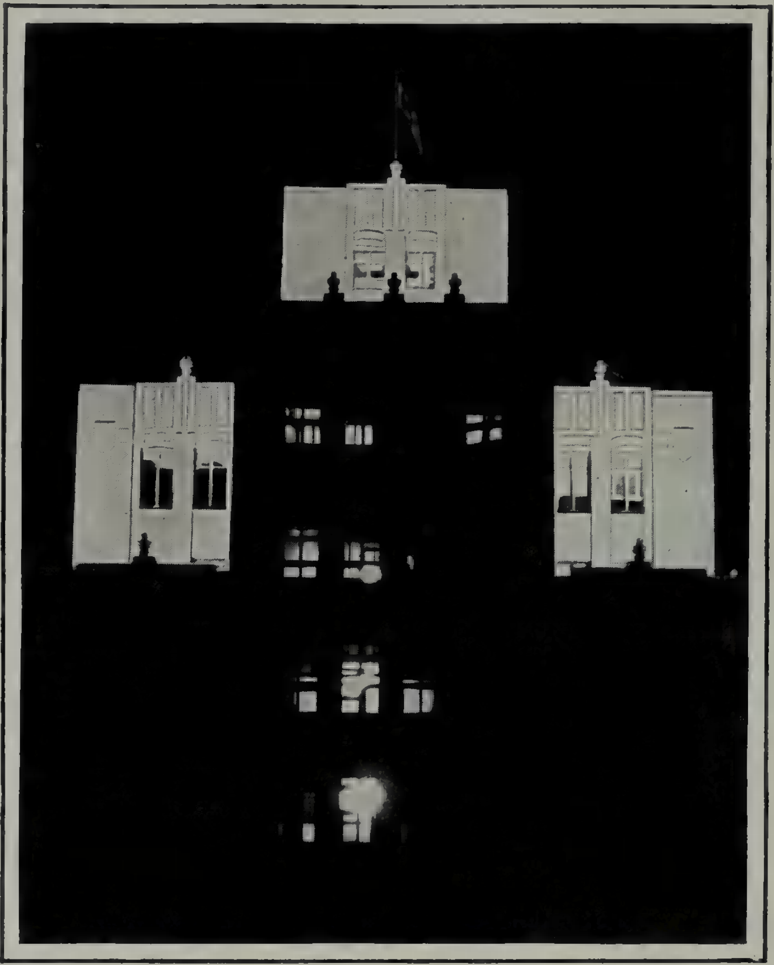
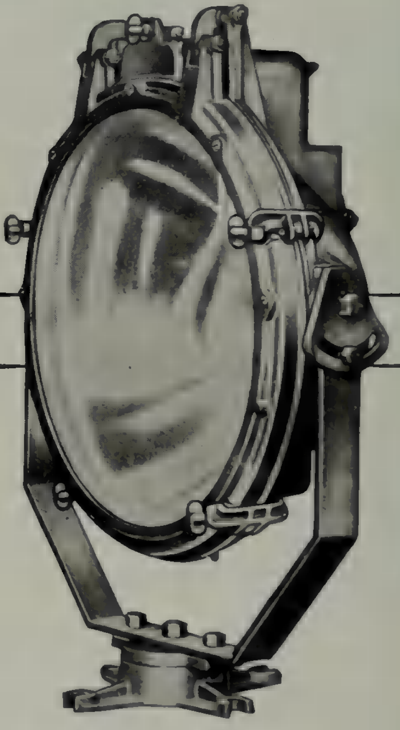


Flood Your Building With Light and Color

CROUSE-HINDS FLOODLIGHTS

Many works of art in architecture, such as office buildings, especially modern designs with their clean perpendicular lines, lose their beauty at night unless illumined. Flooded with light and color, these monuments of genius rear their proud heads in the clouds, bathed in a steady glow of light or different cycles of color, melting one into the other.

Our engineers are prepared to solve any color floodlighting problem. Let us plan your installation so that it will be economical as well as attractive.



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Our new descriptive leaflet, with specifications, will be sent upon request.

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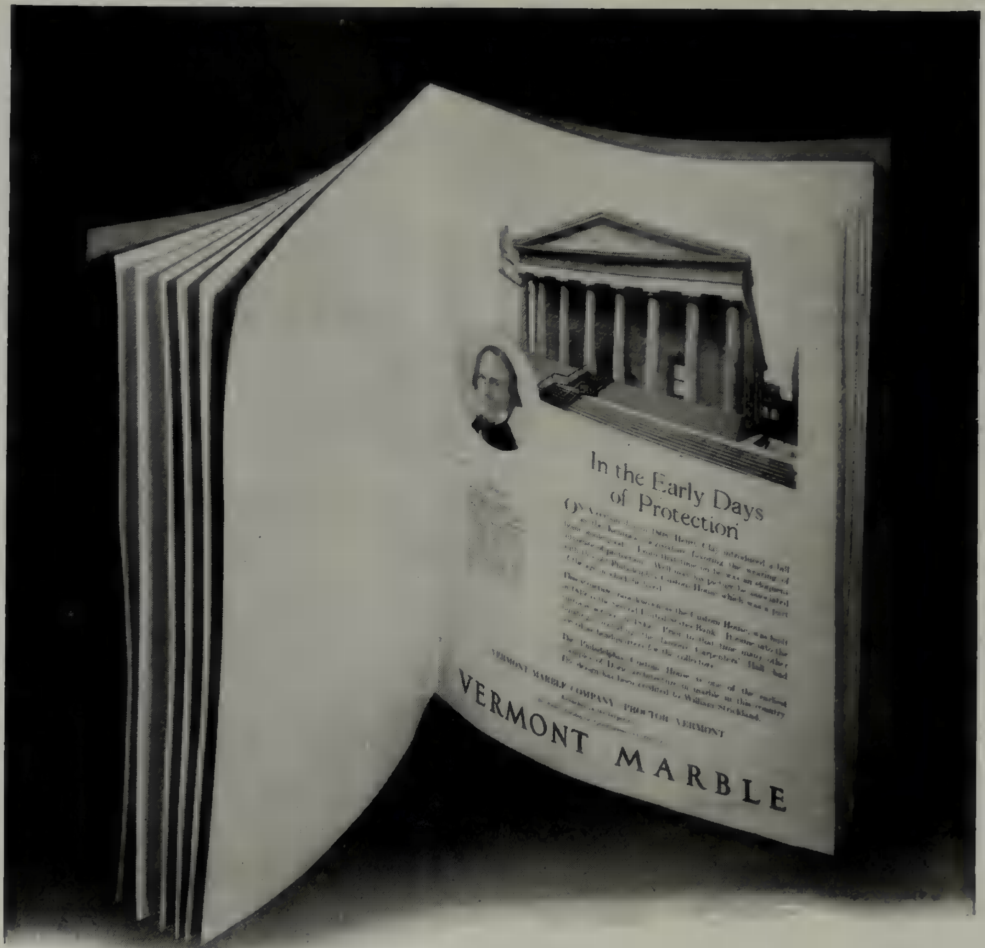
IN CANADA: ARCHITECTURAL BRONZE & IRON WORKS, TORONTO, ONT.



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See Sweet's Architectural Catalogs for Specifications and Other Data

VERMONT MARBLE

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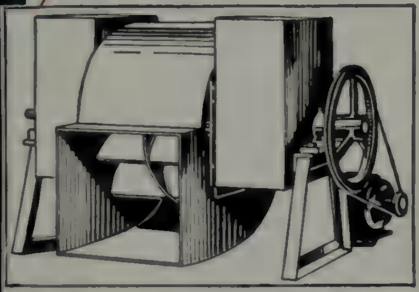
SAVE TOIL



The Piatt-Furblo Positive Air Agitation Means Pure, Fresh Air Circulation. No Cold Spots. Warm Air Continually Moving, Carried to All Parts of the House, Greatly Increases Furnace Efficiency.

REVOLUTIONARY—*a furnace—an oil-burner and circulating fan*

Piatt offers a complete oil-burning, humidifying, and air-circulating system; *all at the price of any good oil-burner*. Installation is simple.

Approaching perfection in heating . . . meeting modern demands for less drudgery—less dirt, the Piatt Furnace with built-in oil burner and Furblo circulating fan simplifies home-heating problems and makes for permanent economy.

The Furblo forces warm, humidified air in winter and cool air in summer, regardless of furnace position. The boiler-plate, welded-joint heat chamber is enclosed in a heavy sheet iron, galvanized shell, banded top, bottom and middle. Attractiveness and compactness are immediately apparent.

Operating economy is assured by the Piatt principle of combustion. Oil flow is always under positive control regulated by thermostat. The burner itself is cast iron . . . has no moving parts.

Operation on 38-40 gravity oil is automatic and economical. A file-size specification sheet gives full information.

MOTOR WHEEL CORPORATION
Heater Division LANSING, MICHIGAN

PIATT **OIL BURNING APPLIANCES** *made by* **MOTOR WHEEL CORPORATION**

FOR MAGNIFICENT INTERIORS
this cream-white cedar

Because it enamels to such a beautiful, porcelain-like finish—because it is non-warping—because it works so easily—Weeks & Day, architects, specified Port Orford Cedar for the interior finish of all apartments in the Brockalbank, one of San Francisco's finest apartment houses.

To the architects of California goes the credit of discovering and bringing to the attention of all America the exceptional merits of Port Orford cedar for fine interiors.

Because it enamels with a beautiful, porcelain-like finish, it is used for kitchens, bedrooms—and for all woodwork of Colonial and Georgian interiors.

Cream-white, easily assuming a true, warm mahogany or walnut stain, Port Orford Cedar beams and panels are found in many of California's palatial homes designed after the English tradition.

It is a relief to work with this wood. It takes nails easily, never checks, splinters or warps. Delicately mitred joints retain their beauty permanently. Port Orford Cedar is free from pitch and knots. It readily absorbs and holds paints without crinkling or blistering. Needs no unusual priming coat. Homogeneous of texture, it machines easily to special designs.

Your local millwork or lumber dealer has Port Orford Cedar or can obtain all standard grades and sizes promptly. Also available in plywood for paneling, cabinet work, boat and aircraft building and many other uses.

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The trademark of the oldest and largest manufacturers of Port Orford Cedar. Specify this brand for superior grades.

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The Aristocrat of Woods

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REPUBLIC STEEL PIPE

REPUBLIC IRON & STEEL CO., YOUNGSTOWN, OHIO

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the regular lighting current FAILED!

IN AN OPERATING ROOM

THERE HAVE BEEN MANY CASES where this has happened and the operation has been hurriedly concluded by the light of pocket flashes—and many cases where serious loss of life has occurred in theatres, auditoriums, schools and similar buildings, owing to a sudden failure in the current supply. It is the moral duty of those who erect such buildings to provide against similar emergencies by means of a supplementary lighting system, and architects all over the country are daily recommending this equipment to their clients.

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By the Landis System an emergency source of power connecting to separate and distinct emergency lighting circuits, is instantly and automatically thrown into service in the event of failure of the regular current supply. The battery charging system keeps the batteries fully charged at all times, and the capacity is such that an entire emergency light load can be carried for at least one and one-half hours. Advantages of the Landis System are

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Send us floor plans and elevation and our engineers will lay out and locate emergency light outlets, together with specifications and wiring and conduit layouts. See Sweet's Vol. D, pages 5428 and 5429 for Emergency Lighting Systems—and pages 5414 to 5427 for Electric Time and Program Clock Systems.

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QUALITY ECONOMY LANDIS SERVICE

another new
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But Toncan means more than just permanence. It means life-long economy. Frequent repairs are unnecessary . . . maintenance costs are low . . . deterioration becomes a minor factor to the owner.

For Toncan wages a more stubborn fight against rust and corrosion than any other ferrous metal . . . the rust and corrosion that attack downspoutings, flashing, cornices, ventilators and window frames. Architects, engineers and contractors find hundreds of uses for this remarkable alloy of pure iron, copper and molybdenum.

Write for our Sheet Iron Primer.
You will find it valuable.

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Corrosion that eats away ordinary pipe has little effect on pipe of Toncan Copper Mo-lyb-den-um Iron.

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Where an Oil or Gas Burner is Used?

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Now your clients of modest means can enjoy the same heating comfort and the same economy of operation that formerly were provided only for wealthy clients with large homes.

For complete information write for a free copy of our booklet, "The Smith 16." Address: The H. B. Smith Co., Dept. E-46, Westfield, Mass.

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Architects, Artists and Leaders of Art in Industry have for many years sensed this as a problem to be met some day; but a group of Leaders in the Ornamental Metal Working Trades, where this problem is ever present, have prepared to meet it in a new and modern way. The day is here and finds them ready, united and consolidated into a corporate entity—the General Bronze Corporation—in itself to discerning observers—an Achievement of Distinction.

We, the consolidated concerns listed below, now GENERAL BRONZE CORPORATION, operate as Divisions. The increased advantages thus secured we will maintain and expand. Our confirmed Good Will we will further by building permanently into our work Qualities worthy of our claims to Distinction. To that end we have adopted and hereby announce this POLICY:

To hold uppermost in mind this truth—that to achieve success in this work, the spirit of beauty and excellence of structure must pervade; and

To administer our activities with all that experience, understanding, research and tradition can impart; and

To direct those works through the best specialized executive ability in art and invention, in architecture and engineering, in the business of production; and

To support that ability with artisans and mechanics, labor and material, plants and equipment of the best that money can provide; and

To efficiently engineer the details of our manufacture to the end that we may be enabled to apply accruing benefits to the constant betterment of art interpretation, quality of production and service.

This POLICY is undertaken in the firm belief that through it we will be enabled to lower costs to the Purchaser and secure reasonable returns to the Public, our Stockholders.

We are convinced that the Qualities of Spirit brought about by this Policy will be reflected in added Love of Craft and Pride in Accomplishment and be embodied in the worthy and enduring Products of Beauty and Utility which constitute the PURPOSE of this Corporation and its IDEAL.

Our every desire is to aid Art, Architecture and these Trades in particular by the fulfillment of these Efforts, to the high and ultimate end that we may contribute our portion to Industry and its advancement.

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FIFTEEN minutes under heat . . . fifteen minutes under icy cold . . . fifteen minutes' exposure to wind . . . fifteen minutes under water . . . and this cycle repeated again and again and again . . .

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Pre-Testing gives you definite assurance that you can specify du Pont Finishes which will protect your buildings longer . . . which will enhance the beauty of your design.

* * *

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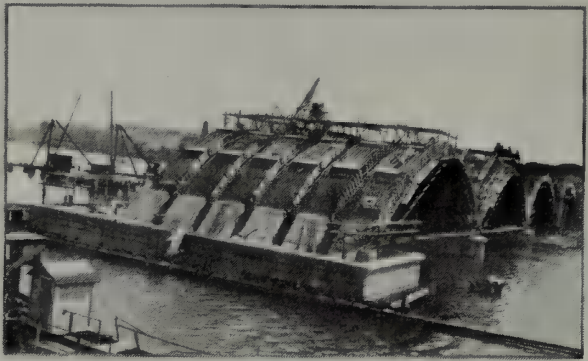
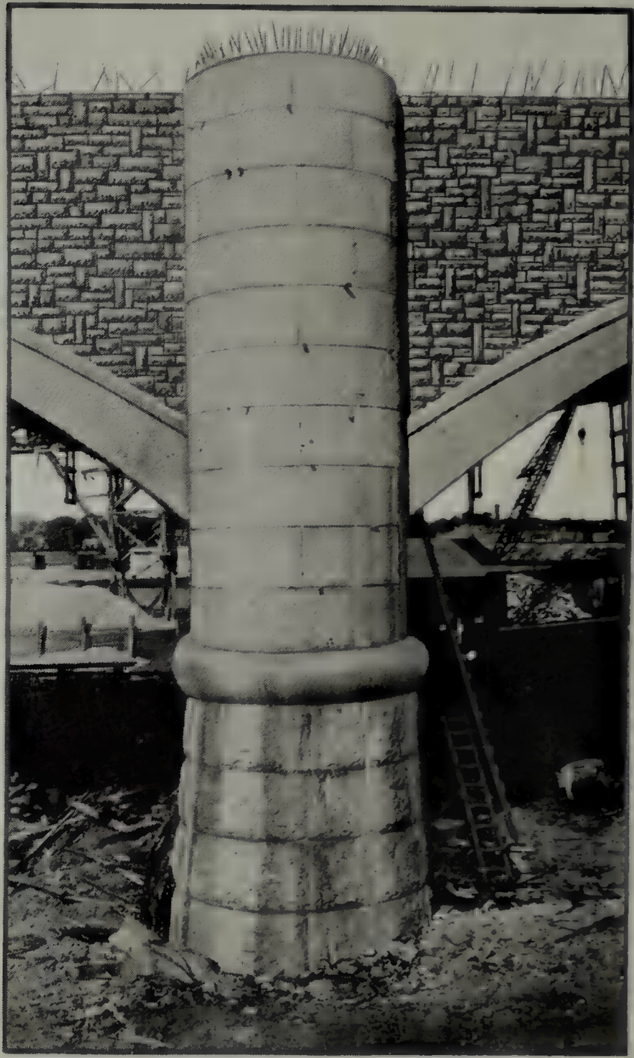
VARNISHES **PAINTS . . ENAMELS . . DUCO**





OF unusual interest are these views of the Washington Bridge, Providence, R. I. Over 2400 feet in length, this structure is faced with colored and variegated granite, resulting in an unusual and beautiful effect. The complete work is indicative of the trend toward the increased use of Granite in bridge construction.

NATIONAL BUILDING GRANITE QUARRIES ASS'N

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GRANITE

ARCHITECTS' ANNOUNCEMENTS

CALENDAR OF EVENTS
GENERAL ANNOUNCEMENTS

Feb. 2-March 2	Architectural League Exhibition, American Fine Arts Building, 215 West 57th St., New York City.
Feb. 3-8	Common Brick Manufacturers' Association of America, Memphis, Tenn.
Feb. 9-15	Convention and Fixture Market of the Artistic Lighting Equipment Association, Washington, D. C.
Feb. 16-21	Thirty-second Annual Meeting, American Ceramic Society, Royal York Hotel, Toronto.
March-April	Fifth International Exhibition of Housing and Modern Industrial Applied Arts at Nice, France.
March 15-22	National Better Home and Apartment Exposition, Madison Square Garden, New York; April 14-21, New Haven, Conn.; April 22-29, Waterbury, Conn.; April 30-May 7, Hartford, Conn.
March 31-April 5	Twelfth Annual Home Show, Grand Central Palace, New York.
April 5-12	Home Complete Exposition, Indianapolis.
May 20-Oct. 1	Exhibition of Modern Architecture and Industrial Arts at Stockholm, Sweden.
May 21-23	American Institute of Architects, Sixty-third Convention, Mayflower Hotel, Washington, D. C.
May 26-30	Fifth International Congress of Building and Public Works, London.
June 19-30	The Fourth Pan-American Congress of Architects and Architectural Exhibition at Rio de Janeiro.
September	International Congress of Architects at Budapest.

COMPETITIONS

March 1	Closing date of annual competition for the Prize of Rome in architecture, painting, sculpture and musical composition. The competitions are open to unmarried men not over 30 years of age who are citizens of the United States. The stipend of each fellowship is $1,500 a year with an allowance of $500 for transportation to and from Rome and $150 to $300 for materials and incidental expenses. Residence and studio are provided at the Academy, and the total estimated value of each fellowship is about $2,500 a year for three years, with opportunity for extensive travel.
	Entries for competitions will be received until *March first*. Circular of information and application blanks may be obtained by addressing Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.
March 10	Closing date for drawings in the Steel-Bridge Competition being held by the American Institute of Steel Construction.
March 14	Programs issued for A. W. Brown Scholarship. Address Wm. Dewey Foster, architect, 25 West 45th Street, New York City.
April 1	Closing date for competitors for the Walter L. Hopkins Scholarship of $500, open to all architectural draftsmen who have never been abroad and who have been employed in architects' offices for a period of at least two years previous to May 13, 1930. Address the Beaux-Arts Institute of Design, 304 East 44th Street, New York City.

W. POPE BARNEY, formerly of the firm of Davis, Dunlap and Barney, announces the opening of an office for the practice of Architecture under the firm name of W. Pope Barney, at 1805 Walnut Street, Philadelphia. With Mr. Barney will be associated Roy Wendell Banwell, formerly associated with the original firm.

GEORGE R. BARTLING, INC., architects, announce the opening of their office at 509-11 Paul Brown Building, 816 Olive St., St. Louis, Missouri.

As ALBERT BUCHMAN is retiring from practice, the firm of Buchman and Kahn, architects, has been dissolved by mutual consent. Ely Jacques Kahn and John M. Montfort have formed a co-partnership under the name of the firm of Ely Jacques Kahn and will continue the practice of the former firm with the same associates and organization at 2 Park Avenue, New York.

SAMUEL GLASER, architect, announces the opening of his office for the general practice of architecture at 552 Washington Street, Brookline, Massachusetts.

MR. ARCHIBALD G. LAMONT, MR. FREDERICK J. KOLB, AND MR. EDWARD L. JUNKIN, announce the organization of the "Interdenominational Architectural Service, Inc.," for general and ecclesiastical practice with offices at 156 Fifth Avenue, New York.

WALTER M. MACOMBER is now an associate member of the firm of Perry, Shaw and Hepburn and will continue to be in charge of the office in Williamsburg, Virginia.

BENJAMIN WISTAR MORRIS, 101 Park Avenue, New York, announces the formation of a partnership with Robert B. O'Connor for the practice of architecture under the firm name Morris and O'Connor. Mr. Morris will continue to give his personal attention to commissions entrusted to him. The firm will have as associates Crandel A. Cochran, Thomas B. Temple, Charles H. Koop, and Howard R. Hutchinson.

NEWHOUSE AND BERNHAM, INC., architects, have moved to new offices at 8 South Michigan Avenue, Chicago, Illinois.

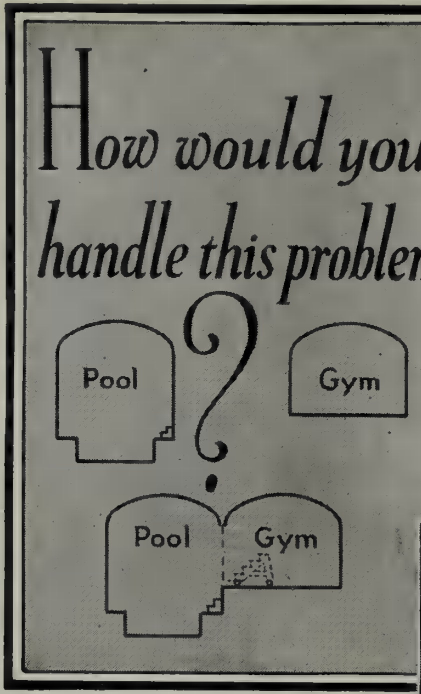
LAURENCE G. NOYES AND EDWARD STEESE announce that they have formed a partnership for the practice of architecture under the name of Noyes and Steese, 52 Vanderbilt Avenue, New York.

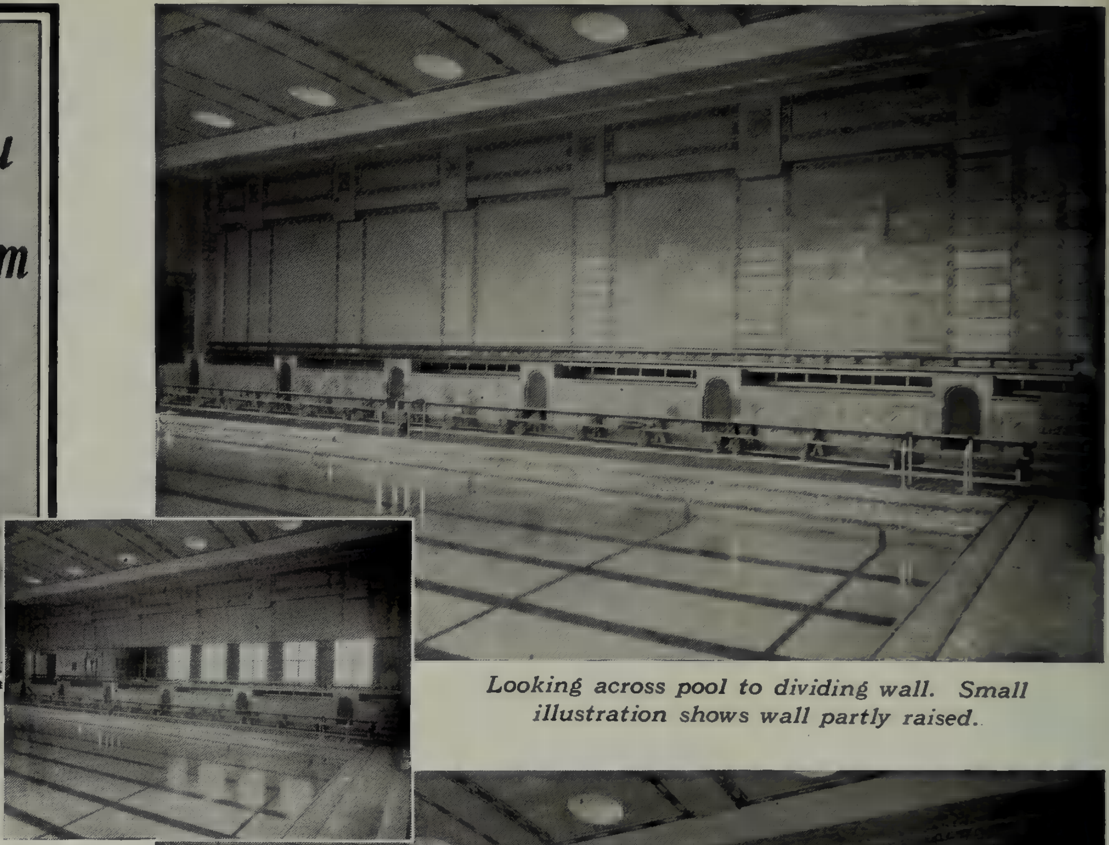
WILLIAM H. STONE, architect, announces the opening of his office at 421 Atwater Street, Saginaw, Mich.

B. H. WHINSTON, architect, 6 East 46th St., New York, is working on plans for a hospital and would appreciate receiving literature and data in reference to hospital equipment and construction.

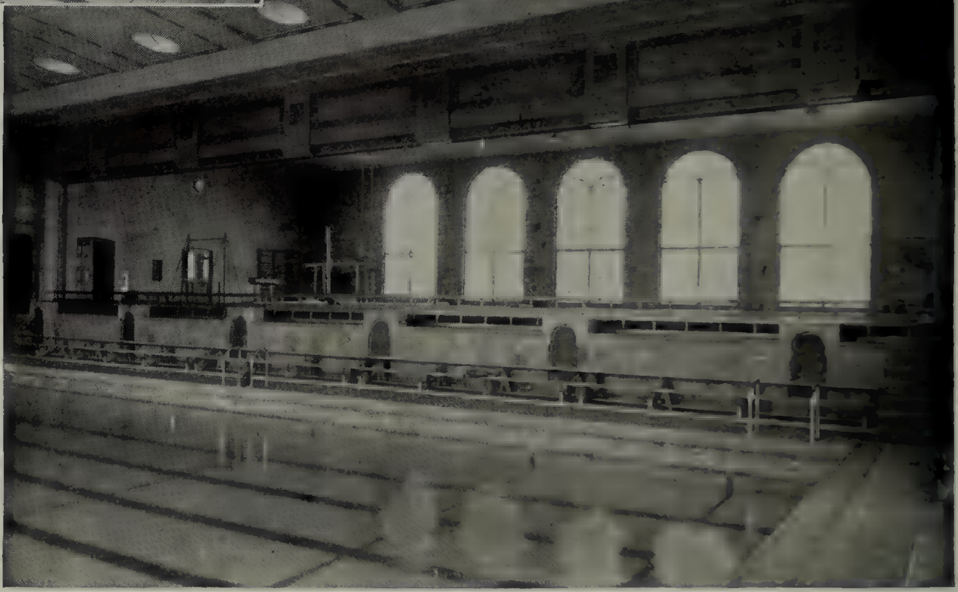
LUCIUS R. WHITE, JR., architect, announces the removal of his offices to the Court Square Building, Baltimore, Md.

A. J. DAIDONE, architect, announces the removal of his offices to 189 Montague St., Brooklyn, N. Y.




Looking across pool to dividing wall. Small illustration shows wall partly raised.

We designed and built a Vertical Sliding Wall


View showing the wall raised into the ceiling.

AT THE Intra-mural Sports Building, University of Michigan, it was desirable to have the pool and gymnasium adjoining, and separated by a wall that could be removed so as to permit the use of portable bleachers on the gymnasium floor.

The problem involved the construction of a continuous dividing wall, self-supporting and rigid; and capable of being finished on the pool side to closely resemble stone, while on the other side offering a surface to take the rough usage of a gymnasium.

We designed, built and installed this vertical sliding wall—a job that is special in its application, but utilizes our standardized, tested equipment. One feature of our service is the absence of guesswork and experiment. Our broad experience and standardized motor units enable us to be of definite assistance to architects in the working out of all such problems.

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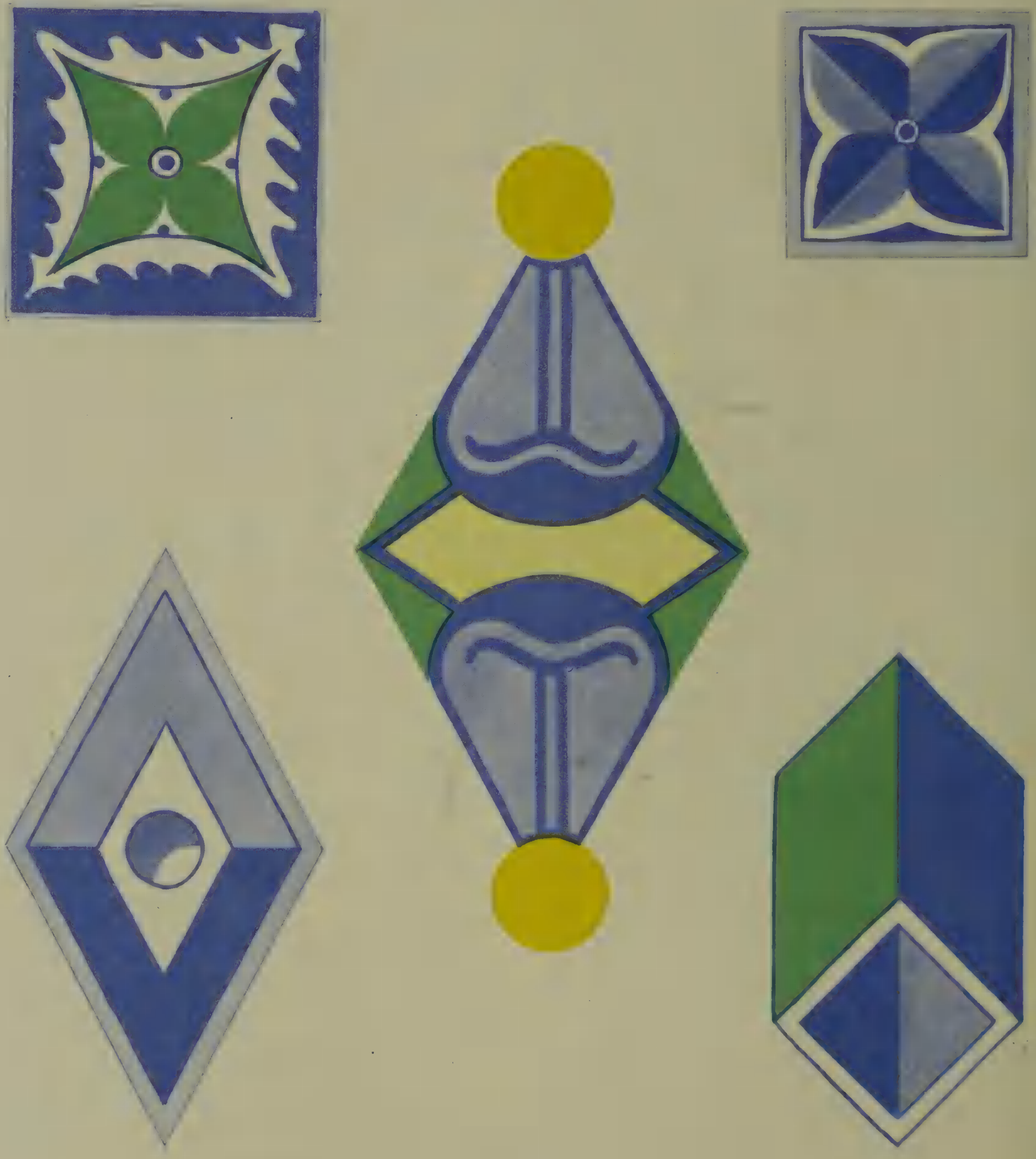
POLYCHROME FLOORS

TWO PLATES BY ANDRÉ LECONTE



MAIOLICA FLOOR IN THE VATICAN _ ROME
SCALE 1/20

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.

POLYCHROME FLOORS

BY HAROLD DONALDSON EBERLEIN AND ROGER WEARNE RAMSDELL

THE POLYCHROME enrichment of floors has never received the extended and illustrated treatment that the importance and interest of the subject both warrant. Writing in the London *Builder*, in 1855, William Burges deplored the meagerness of records respecting the decorated floors of the Middle Ages. He might well have extended his regrets to the whole field of floor decoration, both before and since the period with which he was particularly concerned. And since the days of Burges's complaint there have been plenty of treatises and partial contributions on this or that especial phase of patterned and vari-colored floors in Italy or in France, in England or in Spain, and elsewhere. Likewise, many learned and technical discussions of special topics have been hidden away in sundry archaeological reports and in the proceedings of antiquarian societies. But a general conspectus of floor enrichment, from the beginnings of the art to modern times, has so far been wanting, while polychromy in this connection, the means by which it was obtained, and the principles affecting its use, have fared even worse.

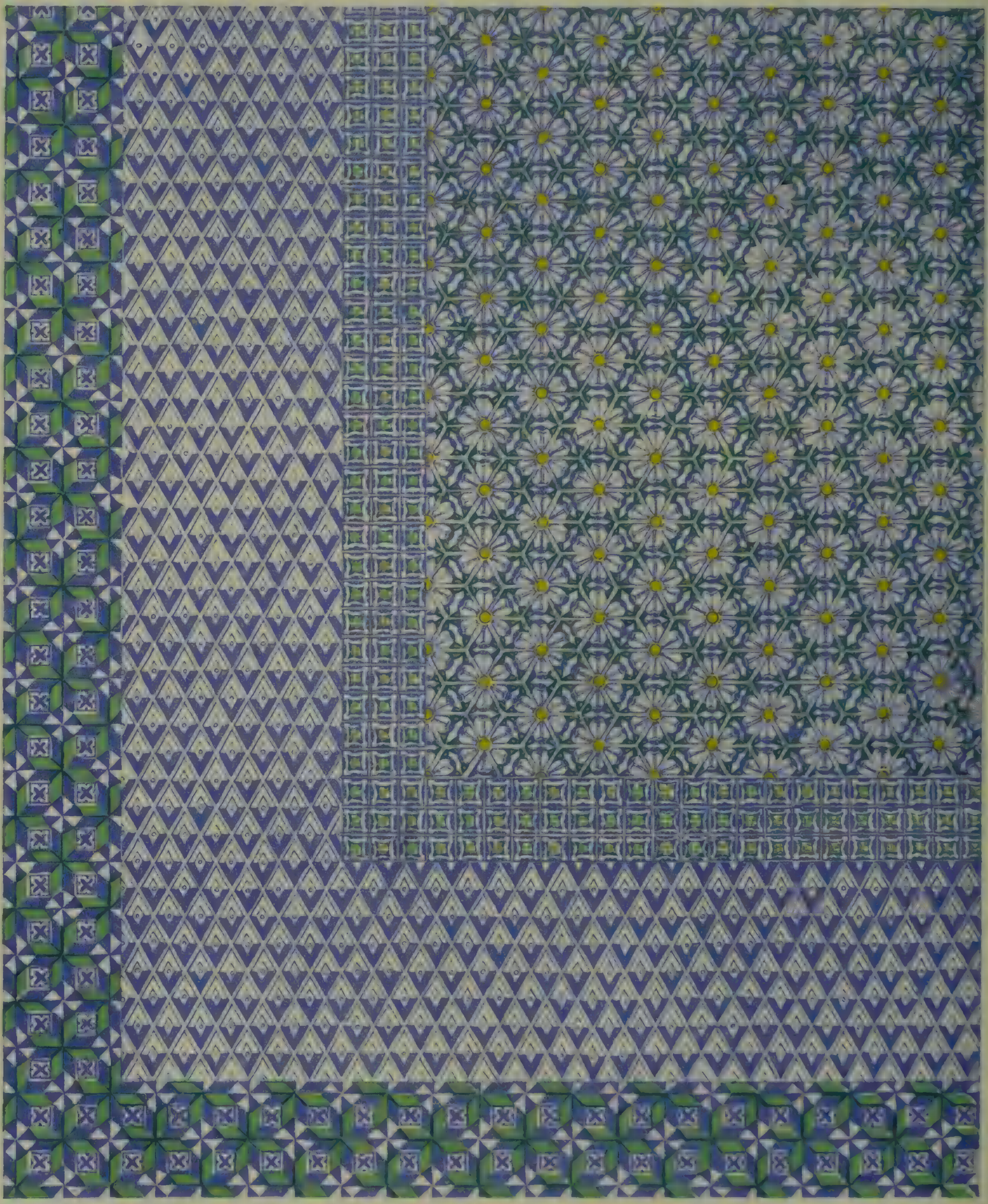
Of floor polychromy the factors are not color and pattern only, but material, and the technique of treating the material, as well. Technique, material, pattern and color are inseparably associated and interacting in any programme of chromatic paving decoration.

It is a curious fact that the color and pattern of decorated floors, and likewise the materials of which they are made, along with the technical processes accessory to the achievement, are usually the very last features of an interior to be noted and remembered, even by those who are trained and ordinarily close observers of all else.

How many people, who are fairly familiar with the interior of Saint Peter's in Rome, and can describe quite faithfully from memory all the details of walls and roof, can likewise tell you anything of the color and pattern of the devices in the pavement wrought with marble inlay? How many, indeed, are aware that there are any multi-colored devices there at all? How many people, who carry away a vivid recollection of Saint Mark's in Venice, can give an accurate description of the floor or even remember clearly of what materials it is made? How many people—architects and painters included—who can discourse intelligently at length on the Pinturrichio wall panels and the ceiling enrichments in the Piccolomini Library of the Cathedral at Siena, can also tell you offhand what the floor is made of, much less what colors and pattern it displays?

The list of materials employed includes marble, stone, brick or terra-cotta in divers forms, majolica or faience, mastic, lead and occasionally other metals, cement or concrete composition in one shape or another and, finally, woods so combined and juxtaposed as to ensure color interest. Stucco, painted or treated with some sort of applied pigment, has even figured in the list.

The technical processes for stone and marble include mosaic work, carving, inlay with stone or metal, and the making of incisions or cavities to be filled with mastic or lead; for brick or terra cotta, we find stamping or impressing patterns with dies, inlay of different colored clays on a tile body of another color, glazing, painting and enamelling, and the arrangement of different single-hued units to compose the desired pattern; for wood, there is inlay or intarsia, and likewise parquetry with all the variant effects obtainable through contrast of color and grain; while for cement, besides *terrazzo* with its manifold possibilities, there is also the embedding of tiles or pieces of stone at intervals in order to ensure variety of color and design.



MAIOLICA FLOOR IN THE VATICAN _ ROME
SCALE 1/20

Architectural Record Series.
Polychrome Floors
André Leconte. mes et del.

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
ARCHITECTURE & THE ALLIED
ARTS & CRAFTS

VOLUME 67 FEBRUARY·1930 NUMBER 2

MIRALAGO BALLROOM AND SHOPS

GEORGE FRED KECK, ARCHITECT

THE BUILDING

Located on Sheridan Road between Kenilworth and Wilmette, Illinois (on an unzoned strip of land belonging to neither village) in the midst of Chicago's North Shore residential section. A hundred yards from Lake Michigan, on a steep bluff rising 75 feet above water level. Used as ballroom and for shops; roof to have roof-garden.

•

CONSTRUCTION SYSTEM

Steel and reinforced concrete. Roof of cantilevered continuous beam, entire load carried down through exposed columns in ballroom. Cantilevered drive through to parking space; entire store fronts cantisevered out for continuous glass if desired, and for maximum flexibility. Store fronts let out one foot from building face to permit continuous row of electric bulbs throwing light against building. For plans see pages 107, 109.

Note that three sheltered lobby entrances permit unloading five cars at a time; Miralago is accessible only by automobile.

•

MATERIALS

Exterior: Walls, white cement stucco with white sand uneven in finish. Windows, wood casement with horizontal muntins; all exterior woodwork painted black. Between windows, gray Vitrolite, wood muntins for support. Copings, base and trim, black Vitrolite. Chromium plate on brass and copper for all metal work including store fronts, light standards, and canopy supports and lighting fixtures.

•

INTERIOR

Ballroom: Dance floor, natural maple; walls, green fabrikoid stretched on forms, trim green enamel to match; South wall, murals of downtown Chicago. Window drapes, silver fabrikoid.

Ceiling, silver leaf over dance floor, deep blue over promenade.

Columns, jet black Vitrolite.

Lighting over dance floor behind etched glass loose in wooden frames; 24 outlets for 3 colors in dimmer banks behind each frame.

Orchestra shell veneered wood silvered with a design.

Downstairs Lobby: Floor, polished black terrazzo, aluminum strips.

Walls, smooth plaster with low-relief ply-wood patterns glued on and painted. Blues predominate.

Ceiling, silver leaf.

Stairway: Rail of monel metal; carpet raisin-colored, ceiling silver leaf.

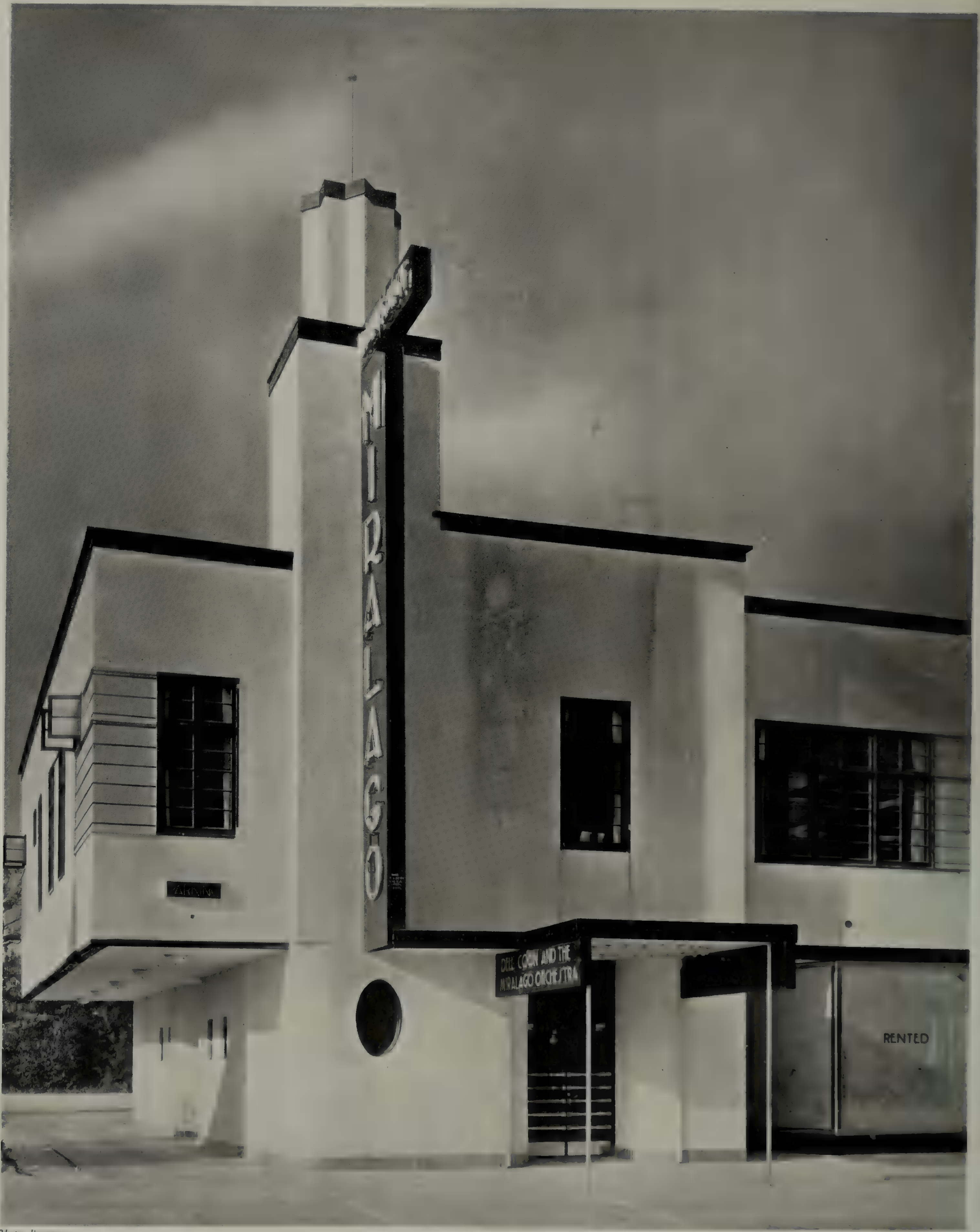


Photo. Bowman

SHOWING CANTILEVER OVER DRIVE
MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO
GEORGE FRED KECK, ARCHITECT

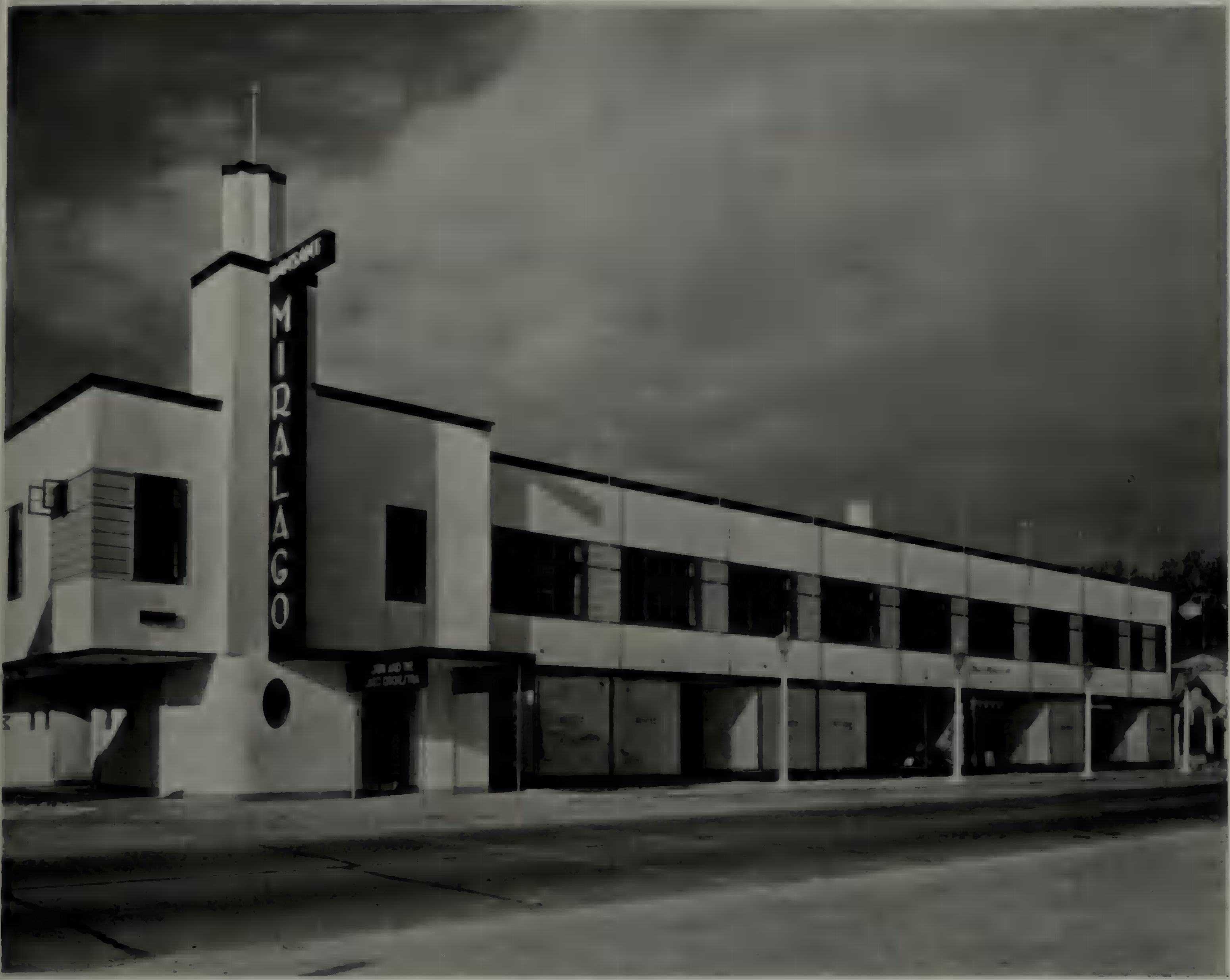
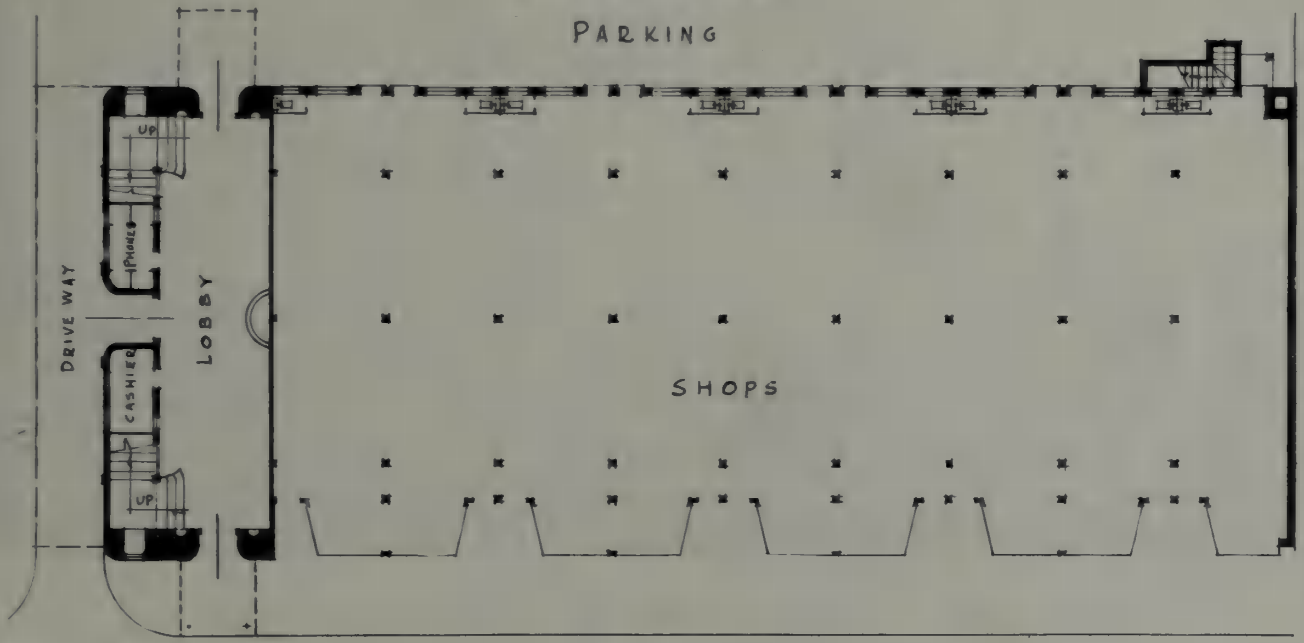


Photo. Bowman

VIEW FROM HIGHWAY



GROUND FLOOR

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

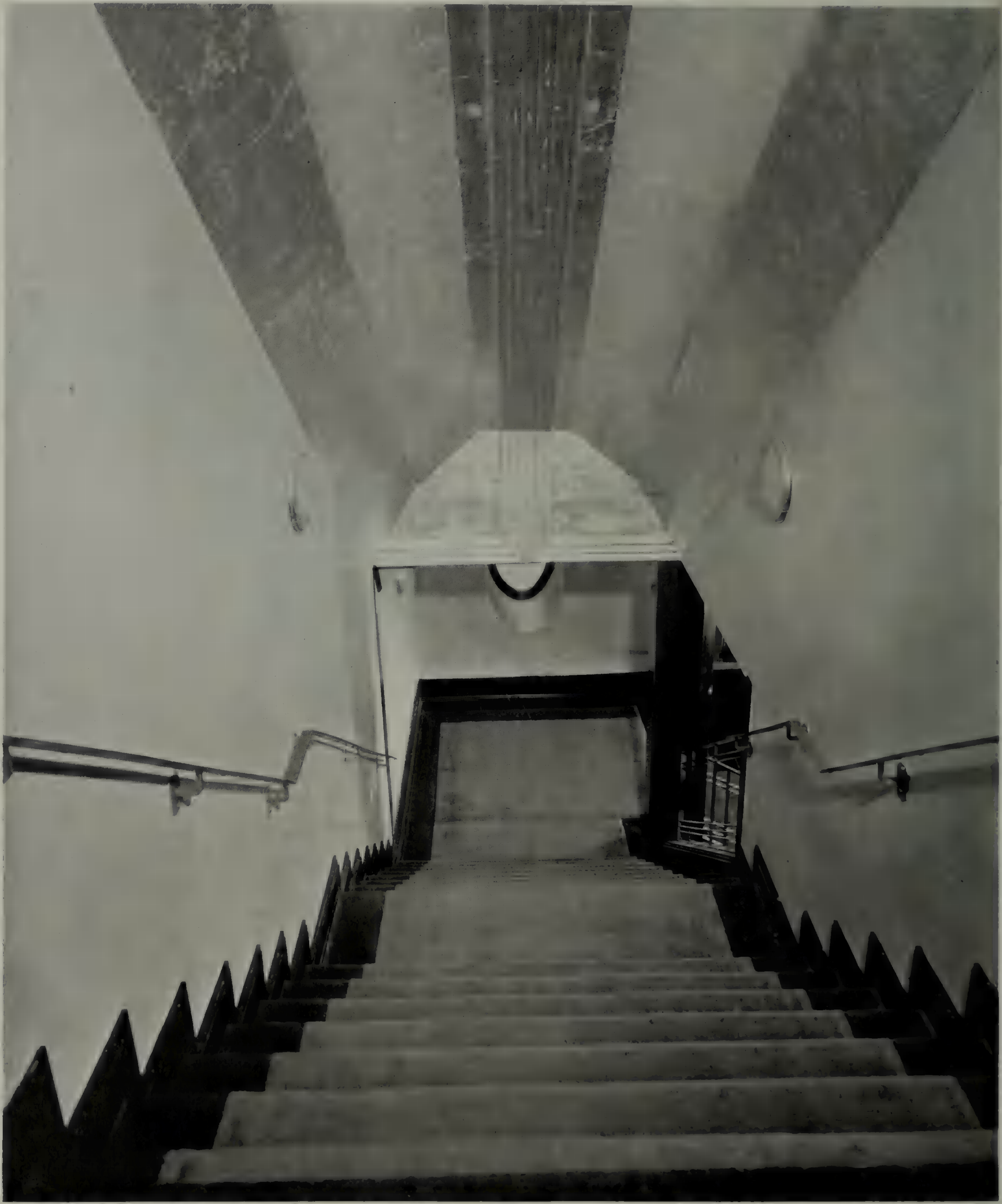
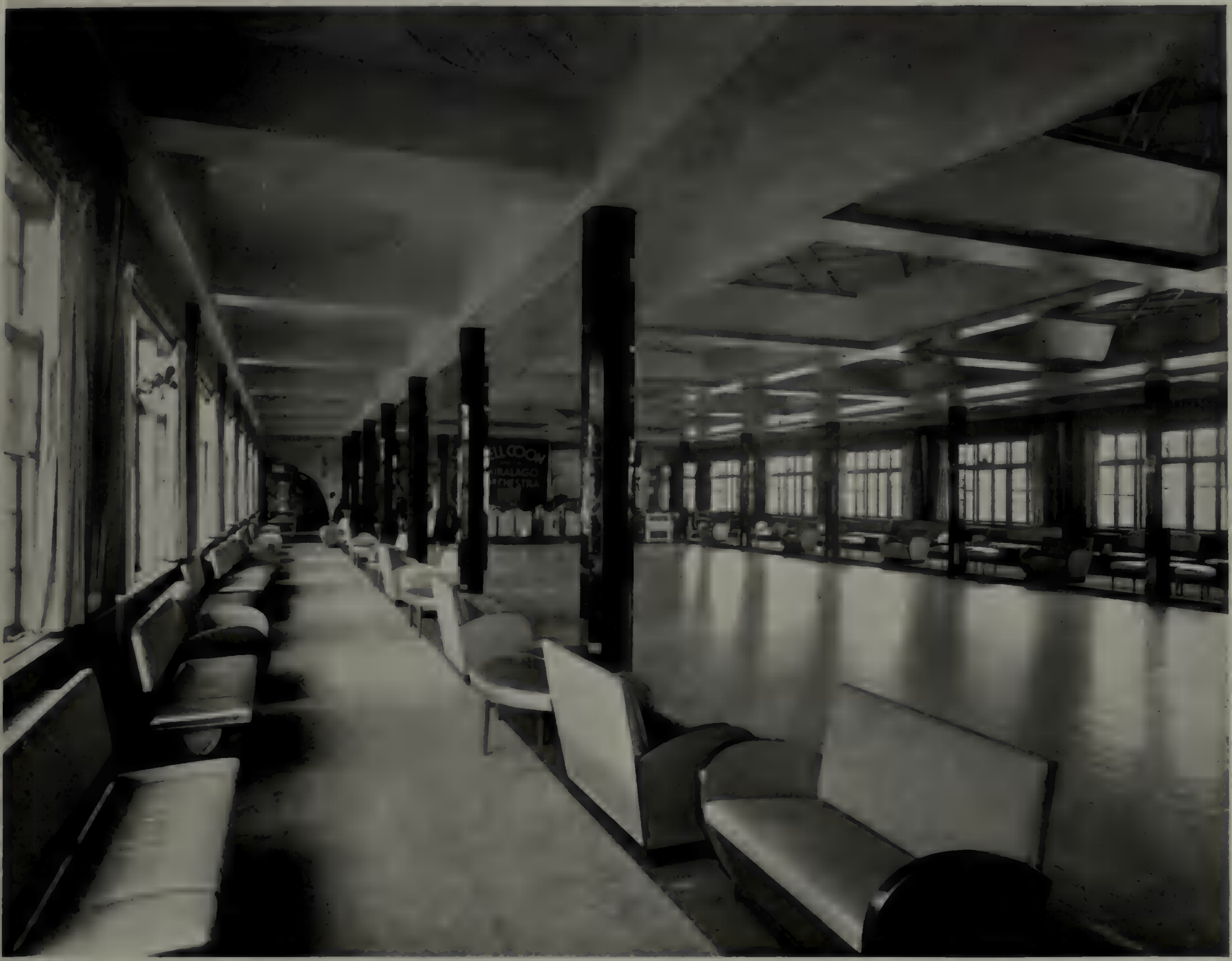


Photo. Bowman

STAIRWAY
MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO
GEORGE FRED KECK, ARCHITECT



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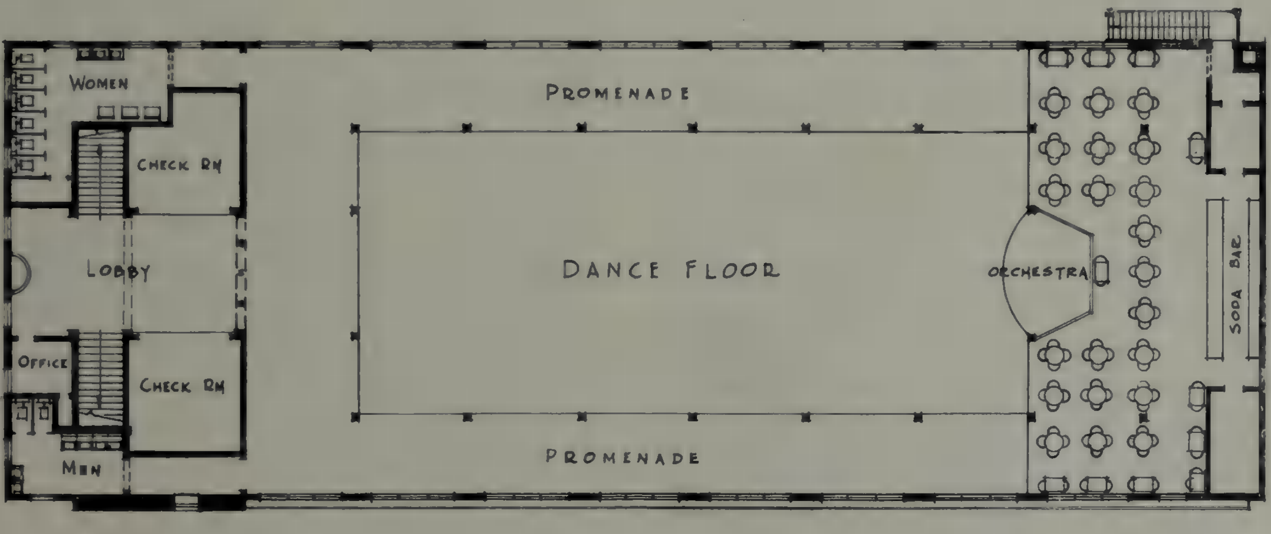

DANCE FLOOR VIEW AND PLAN

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

MASS PRODUCTION AND THE MODERN HOUSE

BY LEWIS MUMFORD

(Part Two)

IN modern architecture, I pointed out in my first article, the emphasis has shifted from building to manufacture. Since the parts of a building have been industrialized, it has naturally occurred to certain intelligent designers that the whole might eventually be treated in the same manner: hence various schemes for single family unit-houses, designed for greater mechanical efficiency. Those who approach the problem of the modern house from this angle suggest that the mass house may eventually be manufactured as cheaply and distributed as widely as the cheap motor car.

Although this development holds out promise for definite improvements in functional relationship and design, there is some reason to doubt, I pointed out, that costs could be cheapened as radically as the advocates of a purely mechanical improvement have supposed. A good part of the total cost of housing is represented by factors which, like the cost of money or land, are outside the province of factory production, or, like the numberless constituent parts of the house, are already cheapened by mass production. The mass house promises a better mechanical integration. That would constitute an advance; but not an overwhelming one; and the mere ability to purchase such houses easily and plant them anywhere would only add to the communal chaos that now threatens every semi-urban community.*

We have now to see whether there is not a different line of advance which rests upon a more thorough comprehension of all the social and economic as well as the technical elements involved. Without abandoning a single tangible gain in technique, there is, I think, a more promising road that, so far from eliminating the architect, will restore him to a position of importance.

II

Taking the individual house as a starting point, it is by now hopeless to attempt to restore it to a central position in domestic architecture. The individuality of such houses is already lost. Except for a bare ten or fifteen per cent of the population, such houses cannot be produced by individual architects, attempting to meet the unique wishes of a special client. The words Colonial, Cotswold, Tudor, in suburban architecture are mere attempts to cover by literary allusion the essential standardization that has taken place; and as soon as we approach the price level of the ordinary run of house dwellers, clerks, salesmen, skilled industrial workers, to say nothing of the more unskilled operations and the more poorly paid trades, the game is already lost; the manufactured shingle, the roughly turned colonial ornament, or the plaster "half-timber" show the strain on the purse.

Admirable as is the layout, the pervading conception, of our first American attempt at a "town for the Motor Age," for example, no candid critic can pretend that the individual one-family houses are particularly triumphant examples of modern architecture; and the reason is that even with large-scale organization and limited dividends, it is impossible to isolate such houses sufficiently and lavish upon them the attention that so graciously humanized the traditional house even as late as 1890. Architecturally, these studiously suburban types fall down badly beside the finer rows and quadrangles of Sunnyside, the work of the same architects; and if anyone thinks he can do better with the cheap free-standing house, let him try it.

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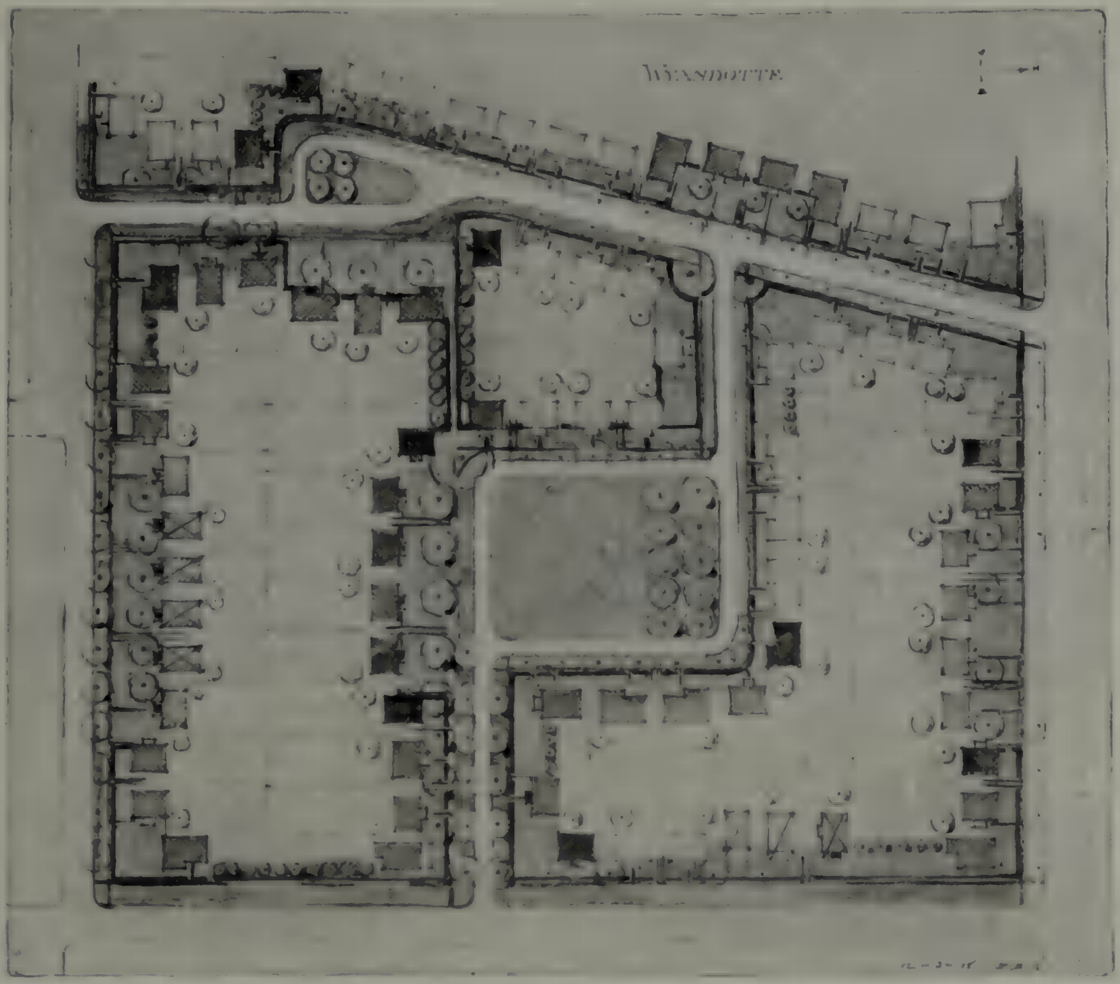
* Mr. Buckminster Fuller already perceives this danger. "The Dymaxion Houses," he writes me, "cannot be thrown upon the world without a most adequate 'town plan,' really a universal community plan."



STANDARD HOUSES IN A COMMUNITY PLAN

A WAR-TIME DEVELOPMENT, WYANDOTTE, MICH., BY HENRY WRIGHT

These are still individual houses, but three main types suffice for both practical and picturesque requirements, because they are an integral part of a community plan

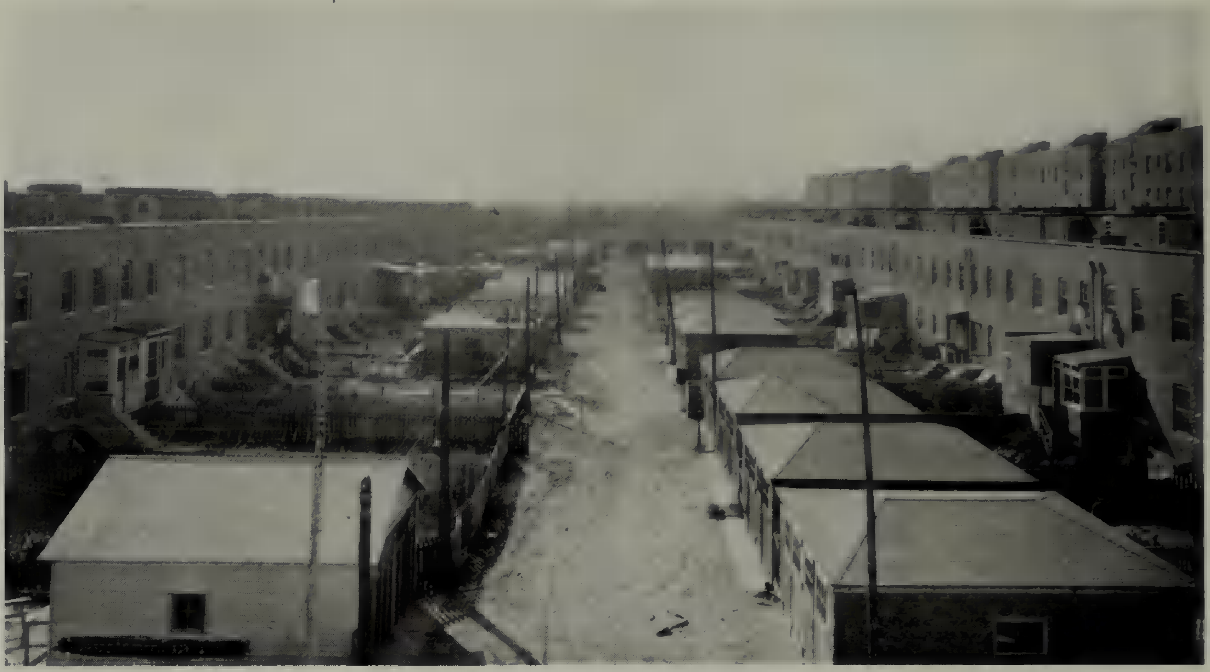
The isolated domestic unit cannot be made sound, beautiful, and efficient except at a prohibitive cost. If we wish to retain the single-family house, we shall have to accept it as a completely manufactured article; and in this event, we must throw overboard every sentimental demand. The advocates of the single-family house have never faced this dilemma: they dream of universalizing the work of Mr. Frank Foster or Mr. Julius Gregory; but the sort of domicile that their ideas actually effectuate for the majority of the population are the dreary rows of West Philadelphia and Astoria.

III

Now, a careful economic analysis shows that there are four possibilities from among which we must choose, if we are to have the renovated domestic architecture we so badly need, namely:

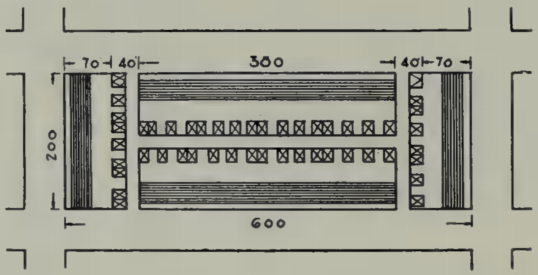
We may reduce the cost of housing from thirty to forty per cent by foregoing all the mechanical utilities we have introduced during the last hundred years. This would enable us to spend enough upon the structure and the materials to produce a fairly good looking traditional house. As a practical feat, this could be accomplished only in the country; and nobody would regard it as a serious remedy for the housing problem: so we may dismiss it.

Or, second: we may raise the wages of the entire industrial population to such an extent that they will be able to make a demand for houses of the same grade that the upper middle classes now create. This is not entirely outside the bounds of possibility; but it would necessitate an economic



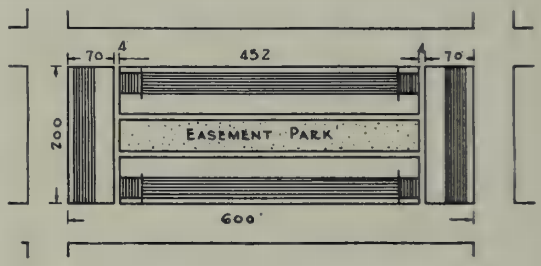
JERRY-BUILDING AND CLUTTER

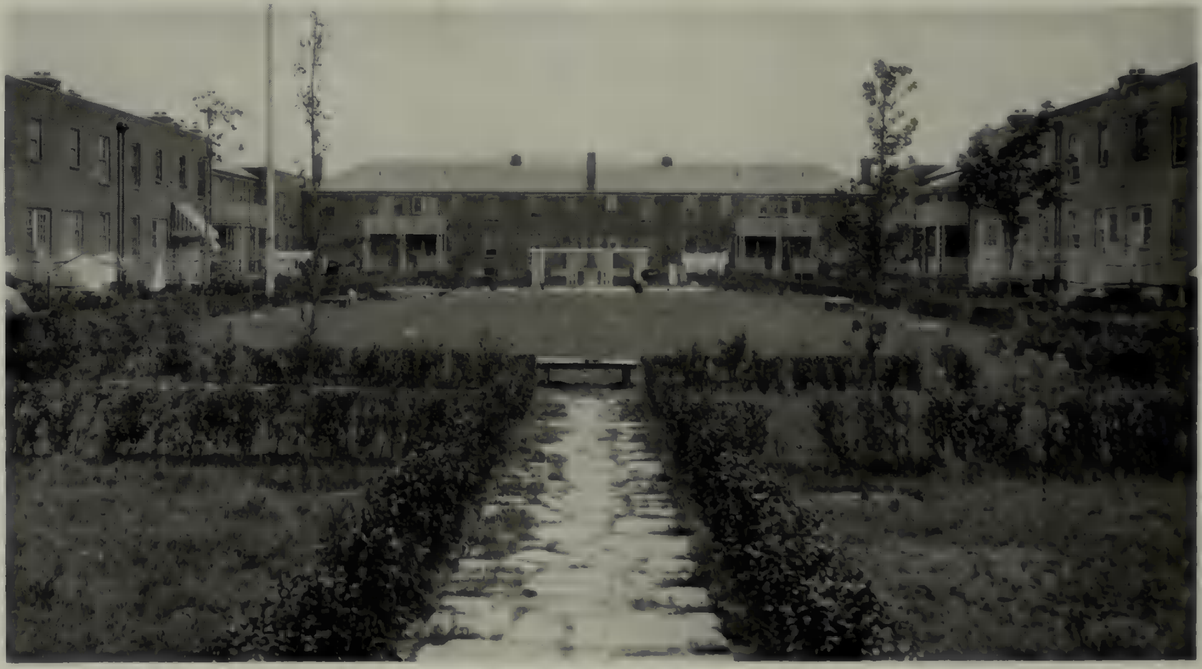
There is no guarantee that this condition will be remedied by mass-production. The problems which most affect this community might be left untouched, or aggravated by the addition of more random contraptions.



But *community* planning at Sunnyside, Long Island, has so rearranged the same type of block that the building space regained permits economical removal of cluttering garages to another block; there is

ARCHITECTURE AND OPEN SPACE





revolution, not alone in the distribution of incomes, but in a maintenance of the entire industrial plant up to the pitch of wartime productivity. Since we cannot create decent single houses for the relatively comfortable middle class today, it is doubtful if this could be accomplished even under an energetic and efficient communism. In order to make good housing practicable, the wages of the lower income groups will indeed have to be raised, either directly or under the disguise of a subsidy; but no rise will bring back the one-family house in an urban area that possesses a complete municipal and civic equipment, including waterworks and sewers and schools.

Or, third: we can preserve the individual isolated unit at the price of accepting all the limitations that now accompany it: lack of open spaces, scantiness of materials, lack of privacy, rapid deterioration of equipment, and lack of esthetic interest. Some of these evils would be mitigated or removed completely in the ideal manufactured house; but others, as I showed in my first article, would remain under our current system of commercial production.

Or, finally, we may seek to establish an integral architecture. This means that instead of beginning with one aspect of the architectural problem, we will begin with the community first, and treat the problems of economics, community planning, technics, and architecture as one, seeking a solution not in terms of the individual "cell" but in terms of the larger unit. This last scheme would derive the character of the house or apartment from the particular social whole of which it is a part; and the solution would not be a fixed quantity, but a variable, adapted to soil, climate, landscape, industrial conditions, racial groupings, and the whole remaining complex that makes up a human community. Instead of crabbing our solution by asking before anything else how shall the single-family house be preserved, we ask the broader question: how shall the fundamental requisites of domestic life be embodied in a modern community program—and that is a radically different matter!

The last course is the only one that really sweeps the board clear of preconceptions and inherited prejudices and faces the problem of the house as it comes before us in the Western World in the year 1930. Unfortunately, there is a considerable vested interest opposed to it: not merely the interest of the small builder, used to doing things in a small way, or the individual home-buyer who has been vainly dreaming of the twenty-thousand dollar house he will some day buy for a thousand dollars down and the balance in installments, but against it are such organized bodies as the "own-your-own-home" movement, to say nothing of a good many sincere and honest people who have concerned themselves with the evils of congested housing. We have all these groups, to say nothing of the standard Fourth-of-July orator, to thank for the notion that the free-standing individual house must be preserved at any cost, as if "home" and America were inconceivable without it.

Most of the arguments that support this sentiment are specious and fundamentally unsound; but they still carry an air of respectability. The individual free-standing house was as much a product of the Romantic movement as Byronic collars: it was the formal counterpart of the completely free and isolated "individual," and to look upon it as an immemorial expression of the "home" is to betray a pretty complete ignorance of human history—an ignorance that one can condone only because an adequate history of the dwelling house in all its transformations has still to be written. Spurred on by this romantic conception of the home, its partisans blindly cling to the poor mangled remnant of a free-standing house that remains in the outskirts of our great cities, rather than the fact that these dwellings are, in fact, sardonic betrayals of all the virtues they profess to admire, and possess scarcely a single tangible advantage. Under the cloak of individuality, personality, free expression, the partisans

A STANDARD HOUSE

One of the repeated units in the plan on page 111. Properly designed and placed, even the individual standard house need not be unattractive

of the free-standing house have accepted the utmost refinements of monotony and unintelligent standardization.

Unfortunately, intelligent planning and design on a community scale cannot proceed until this prejudice is knocked into a cocked hat. It is not until the architect has the courage to reject the detached house as an abstract ideal that he will have the opportunity to embody in his designs some of the advantages and beauties that are supposed to go with such a house. That is the paradox of modern architecture: we can achieve individuality only on a communal scale; and when we attempt to achieve individuality in isolated units, the result is a hideous monotony, uneconomic in practice and depressing in effect. We have sometimes succeeded in our synthetic buildings, the hospital, the office building, the apartment house and the domestic quadrangle: we fail, we will continue to fail, in the isolated house. In my first article I pointed out the economic and mechanical reasons for this failure; and I have now to suggest in concrete terms a more favorable program of work.

IV

The aim of an integral architecture, like the aim of the purely mechanical and constructivist architects, is to effect an economy which will raise and spread the standards of the modern house. Where is this economy to be effected, and how is it to be embodied in design? It is here that the difference in approach between the two methods comes out. Are we to attempt to incorporate in the individual house all the improvements made possible by a communal technology, duplicating every item as we now duplicate radio sets and vacuum cleaners, or shall the individual cell be simplified and the costs of all our new mechanical devices distributed through the whole group of cells, careful community planning being used to reduce the cost of equipment?

A concrete example will perhaps make the difference in approach a little clearer. Take a matter like the supply of fresh air. Apart from any human pleasure that may come from the gesture of throwing wide the window and taking in a breath of purer or cooler air, there is no doubt that the problem of pure air can be mechanically solved by means of an artificial ventilating system, which will clean, humidify, and warm at the same time. In certain places and under certain circumstances this system is highly desirable; but, however practicable it is, no one can doubt that its extension to the dwelling house would only add one further element of expense to that vexatious column of expenses which has been lengthening so rapidly during the last thirty years. Instead of working in this direction, an integral architecture, for the sake of economy, would endeavor to secure through site planning and site development, through orientation to sunlight and wind, a result that can otherwise be obtained only through an expensive mechanical contrivance. In a word: the mechanical system accepts all the factors in house production as fixed, except the mechanical ones: an integral architecture looks upon all the elements as variables and demands a measure of control over all of them.

This demand may seem to pass beyond the limits of pure architecture, and the architect may be reluctant to make it. No matter: he will be driven to it for the reason that the house itself has passed beyond the limits of mere building. The modern house functions as a house only in relation to a whole host of communal services and activities. The rate of interest, the wage-scale, the availability of water and electricity, the topography and the character of the soil, and the community plan itself, all have as great a control over the design as the type of building material or the method of construction. It is fantastic to think that adequate design is possible if all these other elements are determined by forces outside the governance of either the architect or the community. There are, accordingly, two critical places which the architect must capture and make his own if he is to solve the social and esthetic problem of the modern house: one of them is the manufacturing plant, and the other is the community itself. With the part that the architect has still to play in industrial design, I can not deal here; but something must be said further of the relation of modern architecture to the work of the community planner.

V

The unit, bear in mind, is no longer the individual house, but a whole neighborhood or community; and the place where collective economies are sought is not merely in factory production, but at every point in the layout or development. In Europe, where a serious attempt has been made, particularly during the last ten years, to cope with the housing of the industrial worker, such schemes are usually fostered by an existing municipality, as in Amsterdam and London, since there are no constitutional limitations upon the housing activities of cities in most European states: in America, apart from dubiously paternal attempts at better housing, undertaken by mill towns, the integration of architecture and community planning has been the work of the limited dividend corporation, such as the Russell Sage Foundation of the new City Housing Company, or the more far-sighted real estate developers, such as the founders of Roland Park in Baltimore.

The right political and economic form for modern community building is perhaps one of the most important social questions that architecture must face; all the more because there is no likelihood that private capital will enter the field whilst fabulous profits can be wrung out of less vital business enterprises. The instigation of such enterprises is not the private job of the architect; but it is a public matter where the weight of professional opinion may legitimately be thrown on the side of the public interest. Plainly, the architect cannot solve by any magical incantations the problem of supplying new houses to families whose income is not sufficient to cover the annual charges. There is no answer to that question except, as I said earlier, in the form of higher wages or state subsidy; although a wilful blindness to this fact is almost enough to establish a person as a housing authority in the United States. An integral type of architecture, seeking economies at every point in the process, is possible only when the necessary corporate housing organization has been erected.

Economy begins with the selection of the site itself, since the modern city, with its underground articulation, cannot be cheaply produced on a rocky or extremely irregular terrain. The next step is in the design of the street and road system. Here the differentiation of domestic neighborhoods from commercial or factory areas, and their permanent protections through easements, restrictions, and zoning of the land, not alone keeps the land-values low—since there is no speculative temptation through possible changes of use—but reduces the cost of paving and utilities connections. Mr. Raymond Unwin made a great advance in community planning over twenty years ago, when he proved that there is "Nothing Gained by Overcrowding" since the burden of multiple streets beyond a definite point more than counterbalances the apparent economy of more numerous lots; and Mr. Henry Wright has more than once demonstrated that there is enough wasted street space in the average American neighborhood to provide it with an adequate park—a demonstration which has now been effectively embodied in the plan of Radburn. The grouping of houses in rows and quadrangles, instead of their studied isolation, is a further factor in economy, not merely by making the party wall take the place of two exterior ones, but by reducing the length of all street utilities, including the paving of the street itself; and the result is a much bolder and more effective architectural unit than the individual house.

With control over these exterior developments, the problem of the interior economies is reduced and simplified; indeed, the two elements are co-ordinate in design, and if architects produced their work on the site instead of in the office, and did not habitually conceal the site costs from their clients—as "additional charges"—they would long ago have perceived this. Emerson said that one should save on the low levels and spend on the high ones; and one cannot improve upon this advice, either in living or in the design of houses. It is a mistake in esthetic theory to assume that the demands of vision and economy, of esthetic pleasure and bodily comfort, always coincide; and an important task of integral architecture is to balance one against the other. Where the means are limited, the architect must exercise a human choice between, say, an extra toilet and a second story balcony, between a tiled bathroom and a more attractive entrance.

This choice cannot be made on any summary abstract principle; it is determined by a multitude of local individual factors: the presence of mosquitos or the absence of large open spaces may, for example, decide the fate of the balcony. If the architect be limited in such local choices, he may have to spend riotously on mechanical equipment; if he have a free hand in community planning, he may let nature take the place of an extra heating unit, an awning, or what not. Again: if a family is forced to look out upon a blank wall, as so many rich people must do on Park Avenue or Fifth, expensive mouldings, draperies, fineries may be necessary to relieve the depression of the outlook: if on the other hand, sunlight and garden-vistas are available, a wide window may take the place of much footling architectural "charm."

In sum, mass production which utilizes all the resources of community planning is capable of far greater and more numerous economies than mass production which only extends a little farther our current factory technique. Such a program for the modern house holds out no spurious promises of a quick, ready-made solution for the difficulties that have been heaping up in every industrial community for the last hundred and fifty years. On the contrary, it isolates the problems of housing which are immediately soluble, from those that can be solved only through a drastic reorientation of our economic institutions; and it paves the way for necessary changes and adaptations in these institutions. If we are to modernize the dwelling house and create adequate quarters for our badly housed population—a far more important remedy for industrial depression than merely building roads—the architect must bring together all the specialized approaches to this problem, instead of merely trying to catch up with the latest specialty. The correct attack was initiated during the war in the governmental war housing program; it has been carried further during the last ten years, by architects and community planners such as Messrs. Stein, Wright, Ackerman, Kilham, Greeley, and Nolen, and although the designs of these men have so far kept close to traditional forms, their approach gives promise of a vital architecture which will in time surpass the work of the present pioneers as their own work surpasses that of the jerrybuilder.

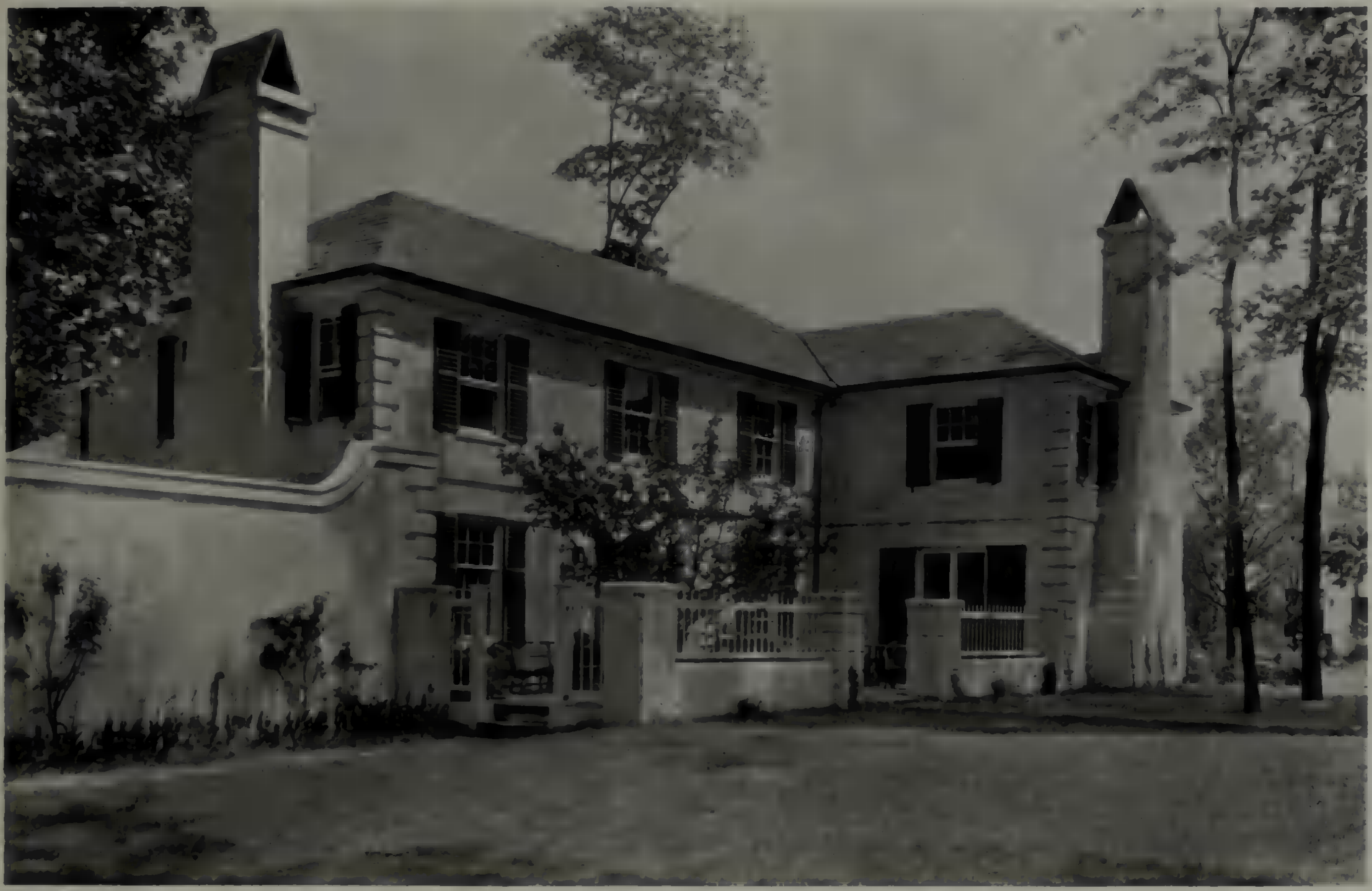


Photo. Gottscho

HOUSE FOR A REAL ESTATE DEVELOPMENT ON LONG ISLAND

PEABODY, WILSON AND BROWN, ARCHITECTS

CUTTING DWELLING COSTS

WHERE do extra dwelling costs come in? An answer is suggested by two houses recently planned by the same architects on the same general lines but different in detail, due to a coincidence which occurred as follows:

Four architects were commissioned by a realty development company to design one house each for a subdivision with the agreement that the architect whose completed dwelling was first to be sold would be the selected architect for the development. The competition was definitely fixed with the number of rooms definitely specified. The contract price for the construction as well as the success of the design was a factor in inducing sale.

The house illustrated on this page was the winning design by Peabody, Wilson and Brown, Architects. This house, including landscaping, cost under $40,000 and serves as an instance of a low bid obtained when a house is contracted for a realty concern. Almost the identical house was erected for a private owner with modifications to meet personal preferences and for occupancy by the owner at a cost of $70,000. An analysis of specifications for the two houses indicates a fairly wide difference in interior finish and in allowance for extras. The cubic content is approximately equal. The house for the realty company is not jerry-built; and yet, by sacrificing personal preferences to more *typical demands*, it approaches the more expensive house *much more nearly in appearance than in cost.*

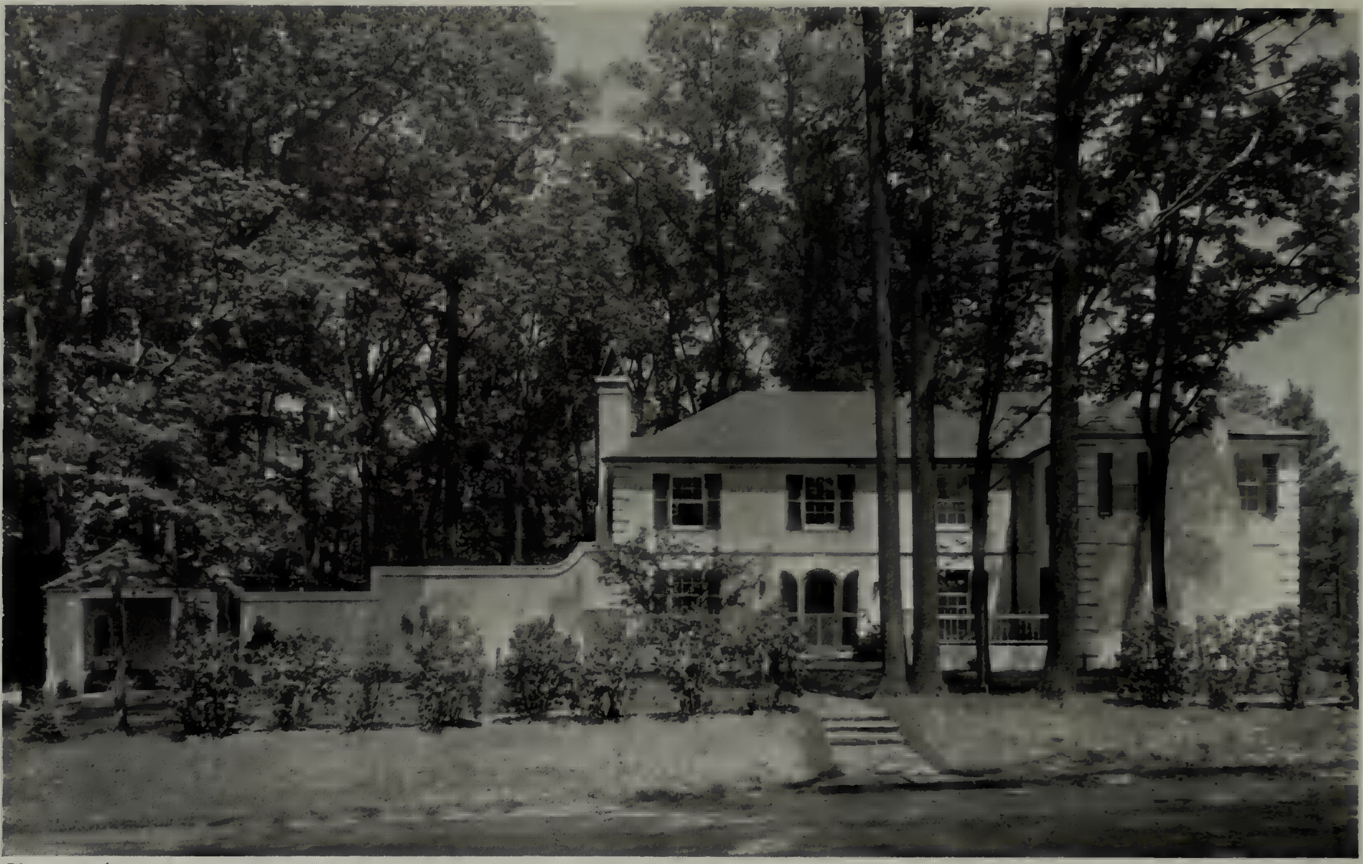


Photo. Gottsch

HOUSE FOR A REAL ESTATE DEVELOPMENT ON LONG ISLAND

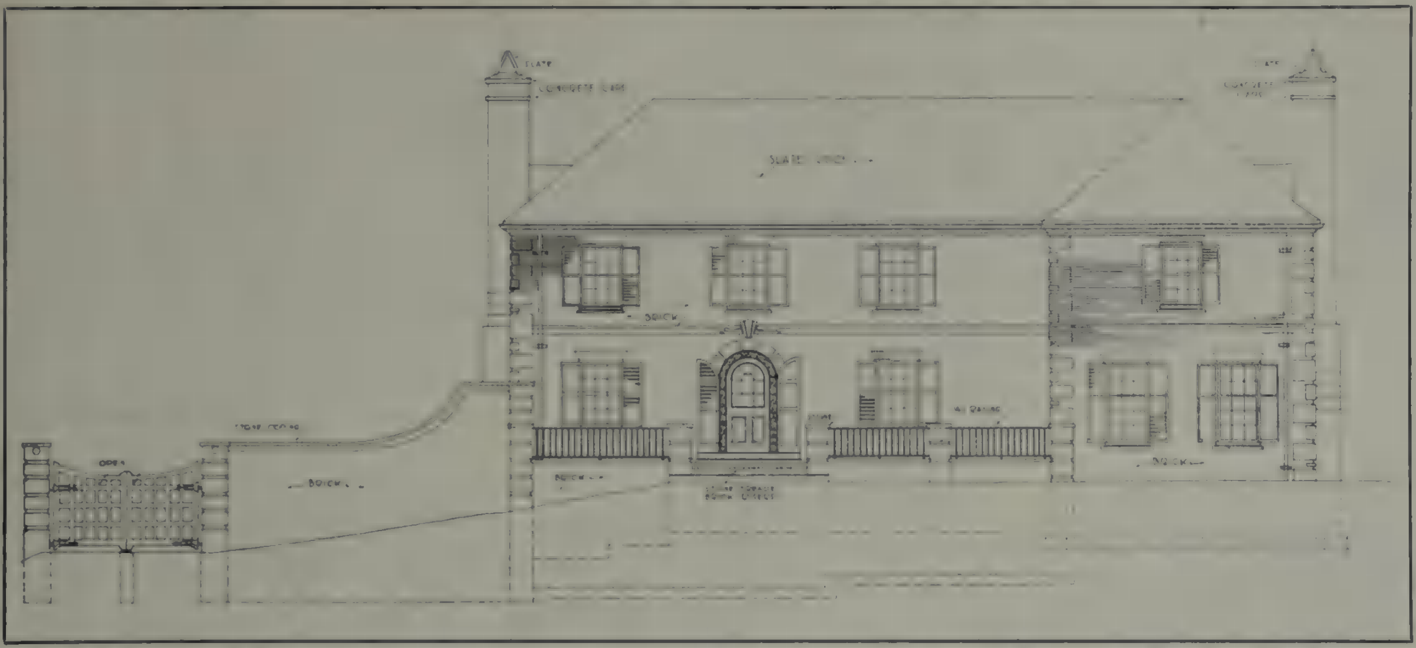
PEABODY, WILSON AND BROWN, ARCHITECTS

The plans made for this house were adapted without any essential differences in layout or appearance for the house on the opposite page. The difference in cost is explained by the parallel analyses below

REAL ESTATE DEVELOPMENT ON LONG ISLAND

Cost—$40,000

First floor area, 2,382 sq. ft.
Second floor area, 1,527 sq. ft.
Basement construction: Concrete block; upper walls 2″ x 6″ studs, sheathed and stuccoed.
Roof of ⅜″ slate 6½″ to weather.
Framed with 2″ x 12″ joists, 16″ C.-C.; plain oak flooring.
Kitchen with linoleum surface.
Brass water supplies throughout.
Plumbing fixtures of good grade, partly in color, with chrome plate fittings.
Vapor heating system; oil burner.
Radiators regular and enclosed.
Wood railing for terrace.
Garage doors hand-operated.
Millwork, partly stock and all simple.
Millwork finished stock.
Glass double strength A.
No special ventilation.
Simple bell system.
Coal and wood bin, ceiling radiator in laundry, work bench in garage, gas range in kitchen, pipe covering, 2 radiators in garage omitted from house as built.
Summer house.
Garage attached.
Road grading and planting.



DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.
PEABODY, WILSON AND BROWN, ARCHITECTS

DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.

COST—$70,000

First floor area 2,631 sq. ft.

Second floor area 1,931 sq. ft.

Basement walls: Poured concrete; upper walls 8″ brick veneer on 2 x 6 studs and sheathing.

Slate roof 5½″ to 6½″ to weather, random widths, ⅜″ and ½″ thick.

Reinforced concrete slab first floor with fill and wood floor over.

Joists 3″ x 12″, 12″ C.-C.; plank oak flooring in living and dining rooms, balance of white oak.

Hall and porch with slate floor; rubber tile in kitchen and pantry.

Brass water supply piping.

Colored plumbing fixtures with chrome plate fittings throughout.

Vapor heating system; boiler provided for incinerator and domestic hot water; oil burner.

Radiators of brass and enclosed.

Wrought iron railing for terrace and special hand wrought gates in hall.

Garage doors electrically operated, special overhead type doors.

Millwork largely special with carved door spandrels and pilaster caps; wood wainscot in living room.

Library panelled in pine.

Finished woodwork of white oak in Master part of house, with uneven "hand-worked surface to give antique effect."

2 Cedar closets.

Built-in vault.

Plate glass for first and second floors.

2 ventilating fans with metal hood in kitchen; closets ventilated.

Bells with annunciator system.

Gas range, work bench, photographic room with sink, pipe covering and complete heating.

Garage in basement.

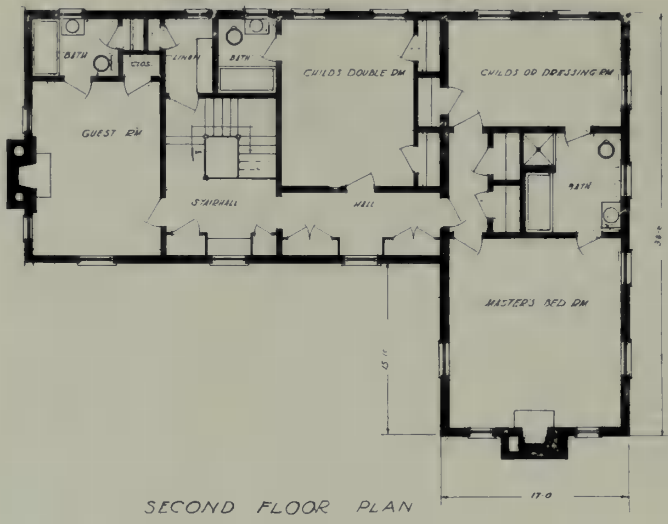
Electric refrigeration.

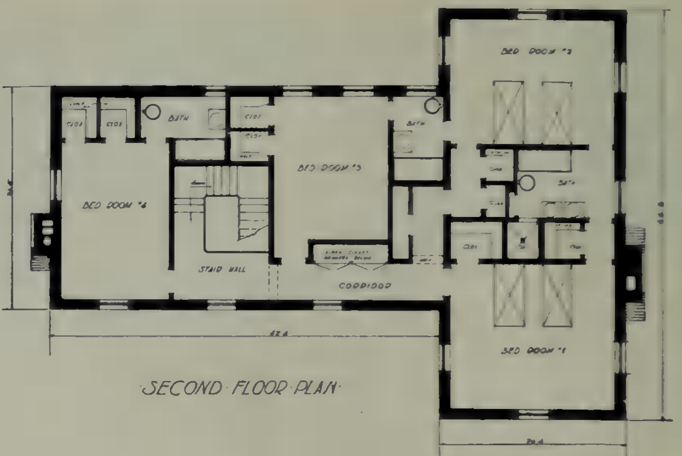
Marble floor and wainscot in owner's bath and shower; faience tile floors and wainscots in other baths and in toilet.

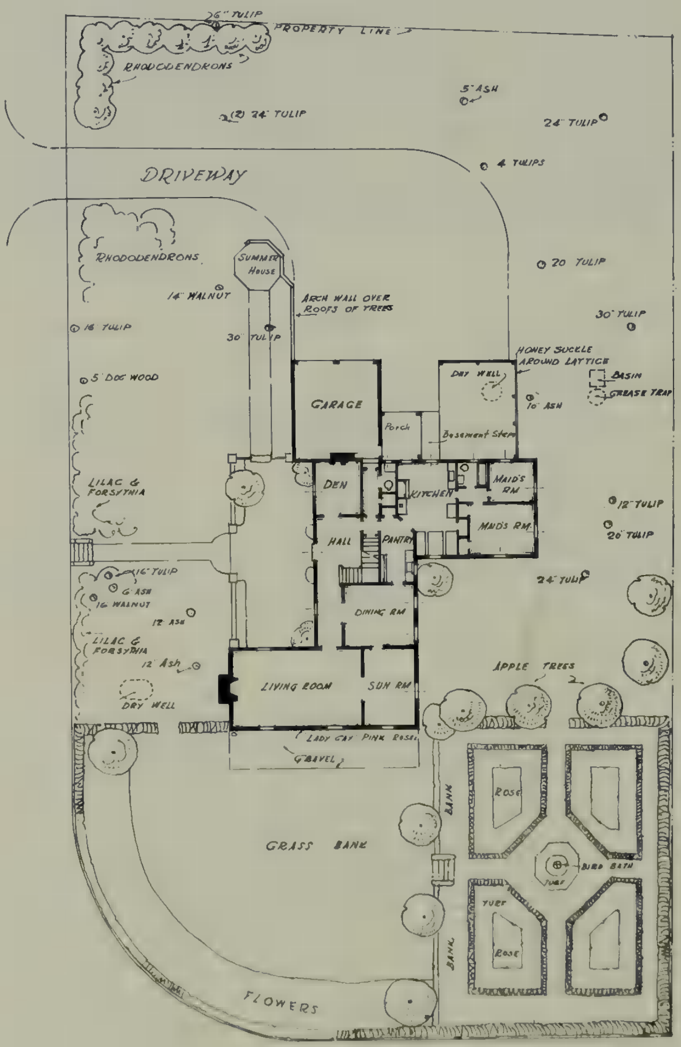
Special bathroom accessories.

Gas range in kitchen.

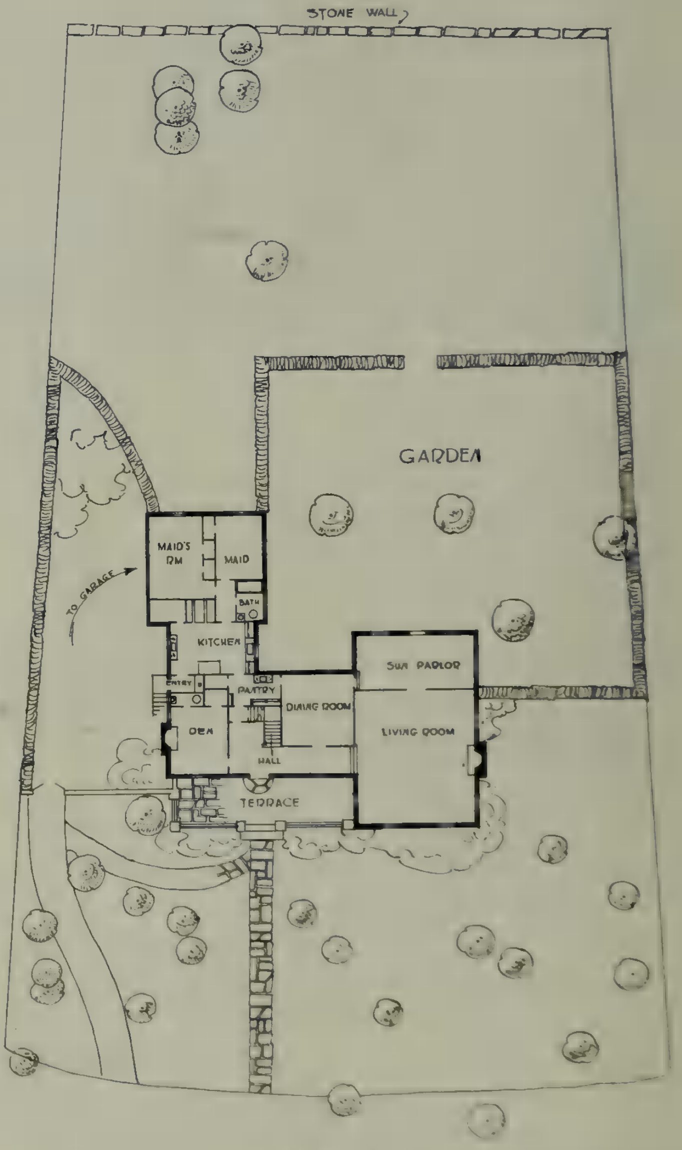
Road grading, no planting.







PLOT PLAN



PLOT PLAN

HOUSE FOR REAL ESTATE DEVELOPMENT, LONG ISLAND
PEABODY, WILSON AND BROWN, ARCHITECTS

DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.
PEABODY, WILSON AND BROWN, ARCHITECTS

TWO SIMILAR HOUSES OF DIFFERENT COST

(See page 117)

PORTFOLIO
OF
CURRENT WORK

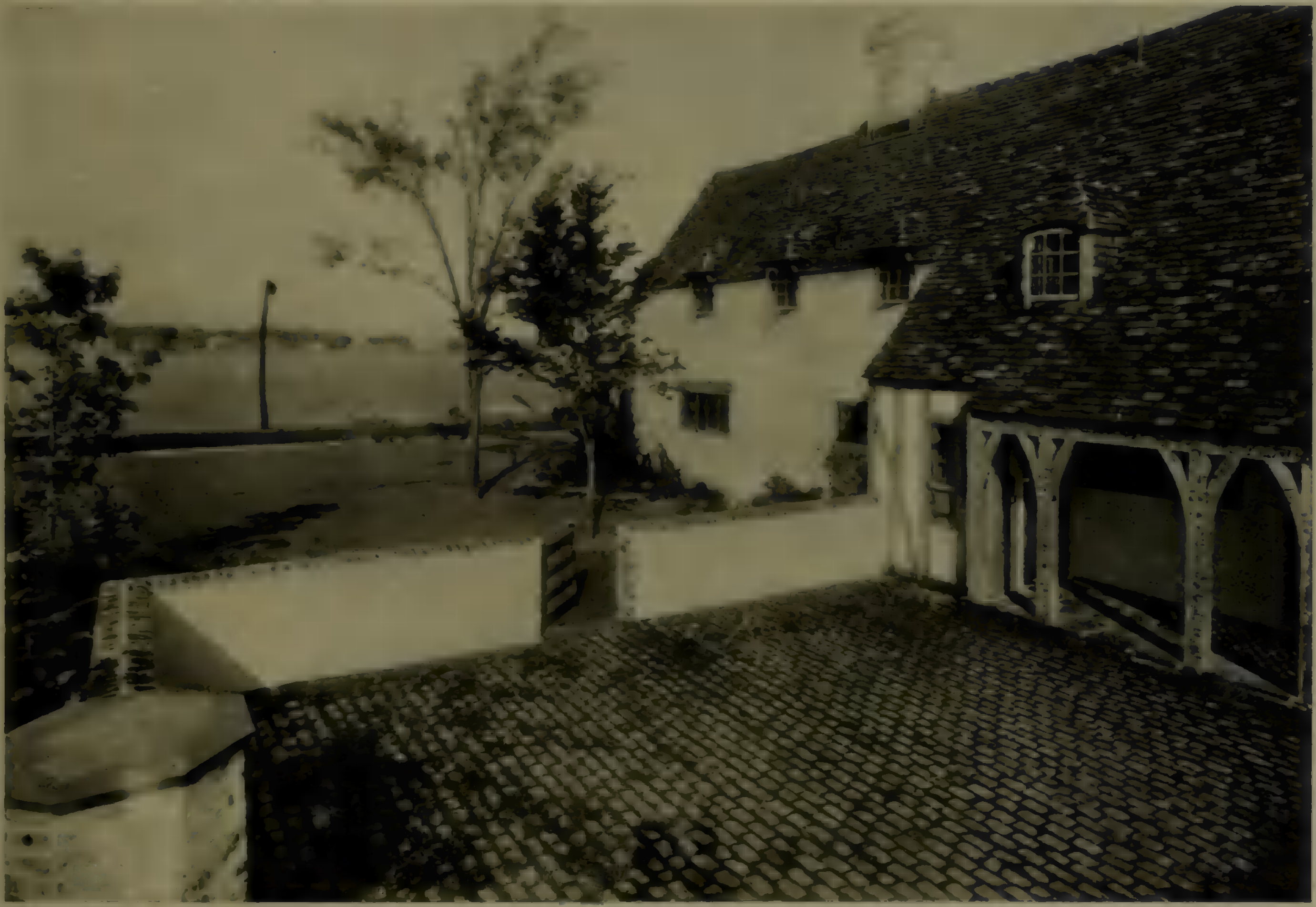


Photo. Gillies

House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

FEATURING
A HOUSE FOR THEODORE BODENWEISER
A HOUSE FOR HUGH GOFORTH
A STORE FRONT FOR LOFT, INC.

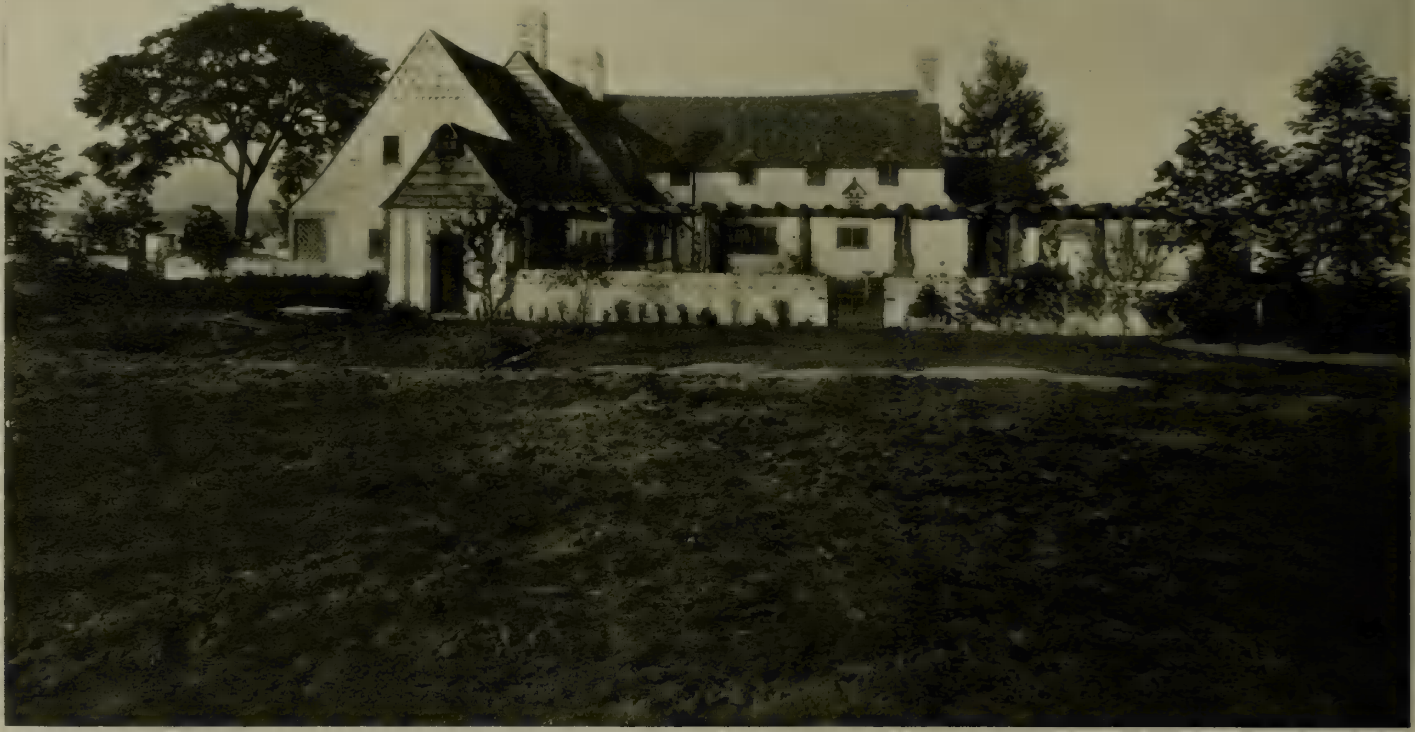
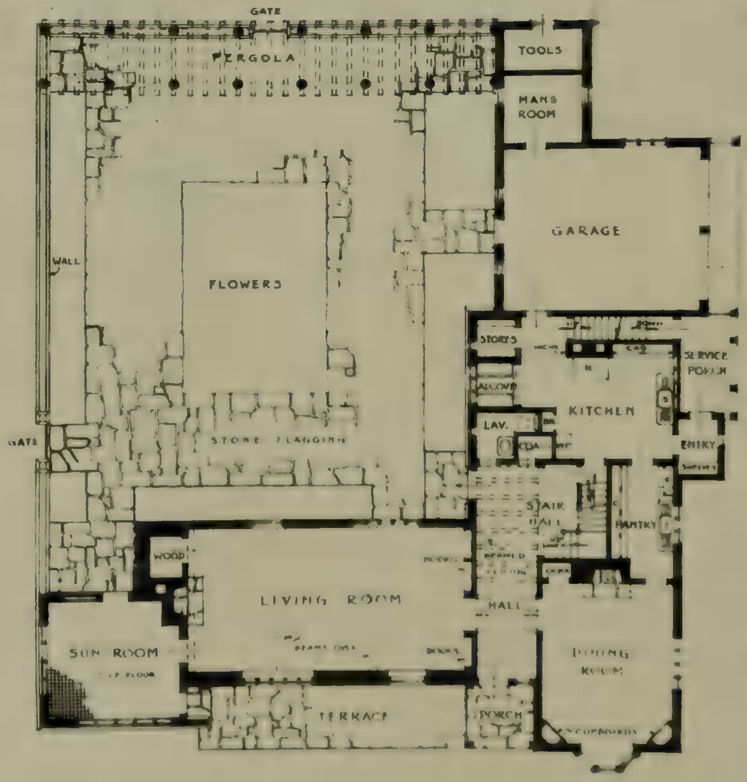
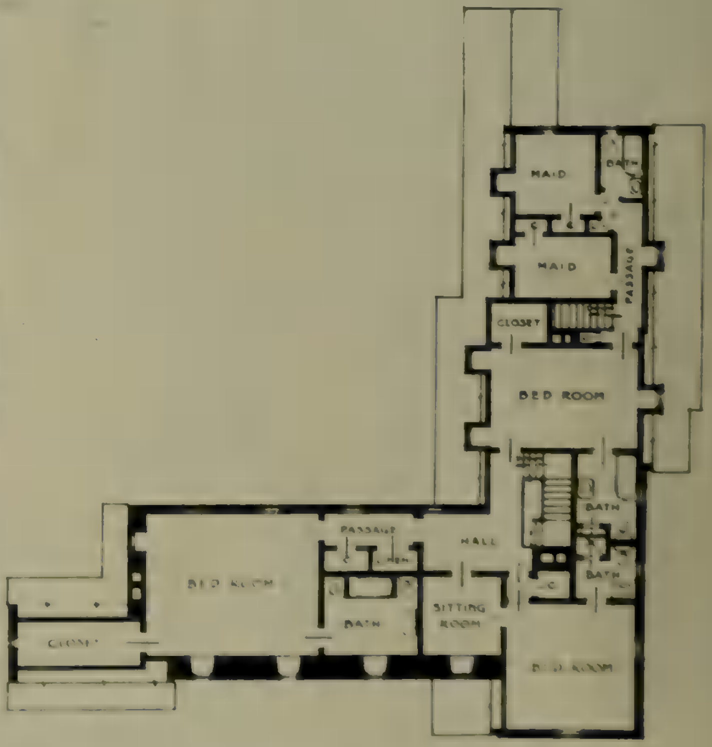


Photo. Gillies

House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT





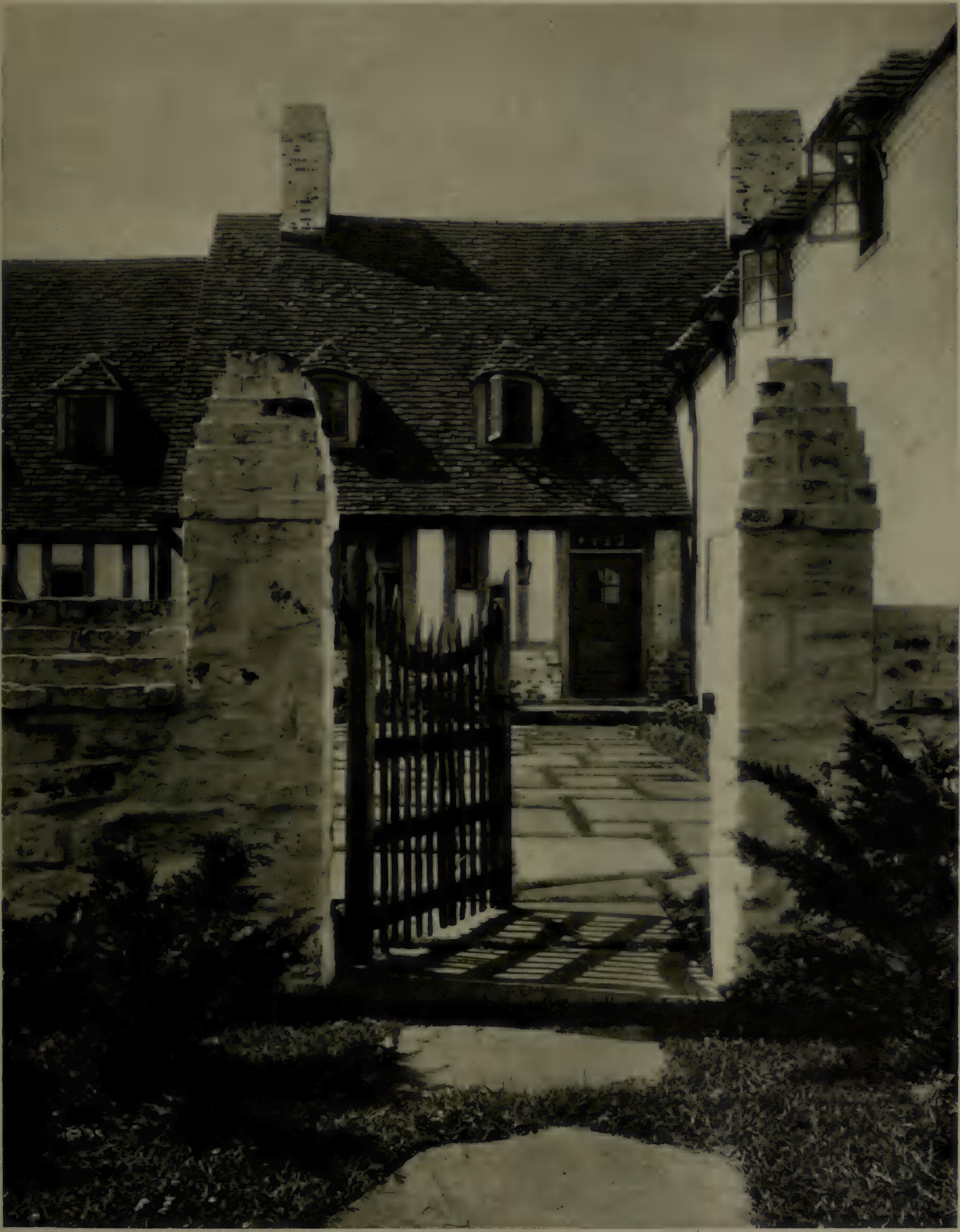


Photo. Gillies

Gateway Looking Toward Main Entrance
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER. ARCHITECT

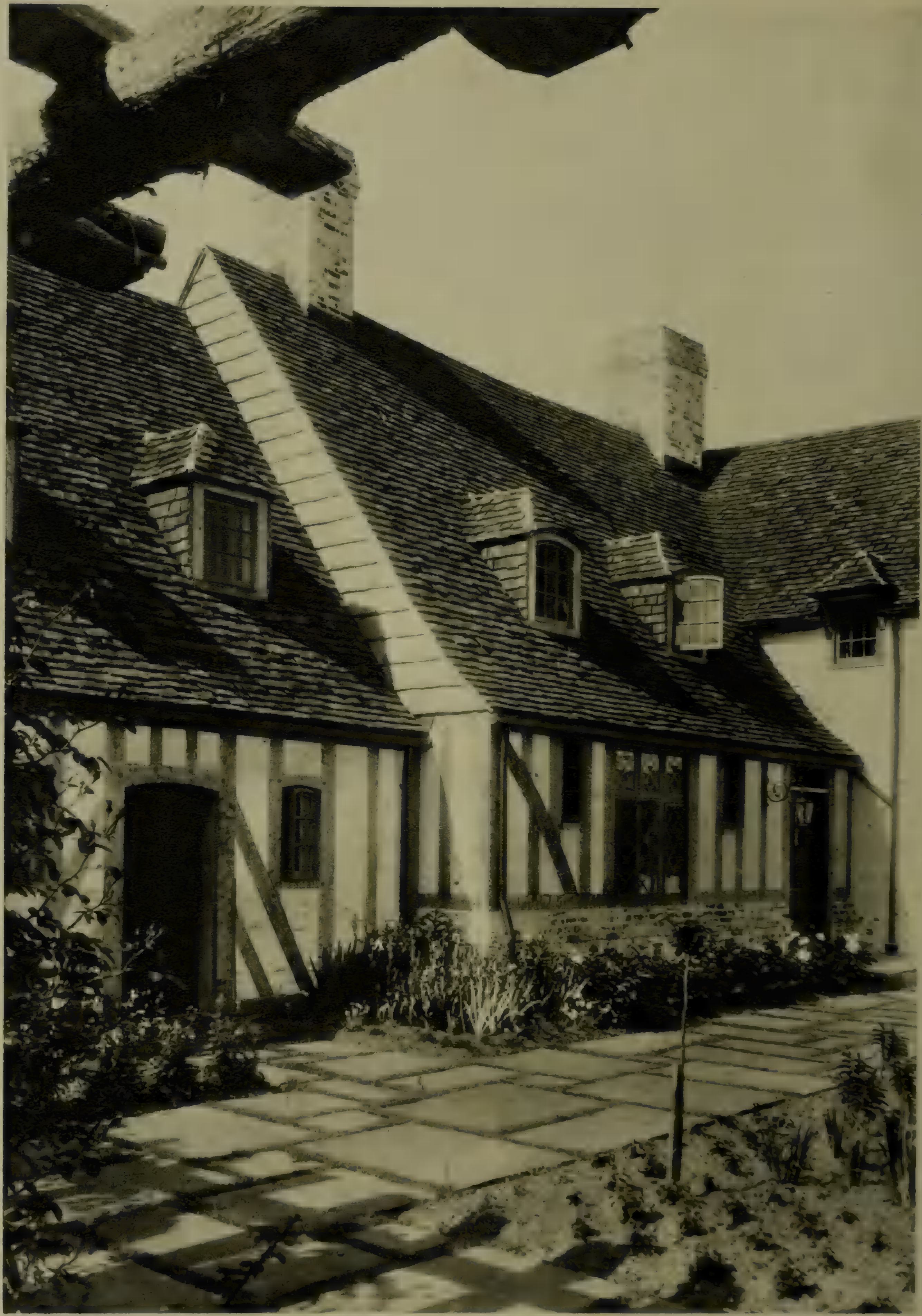


Photo. Gillies

Garage at Left, Main Entrance at Right
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

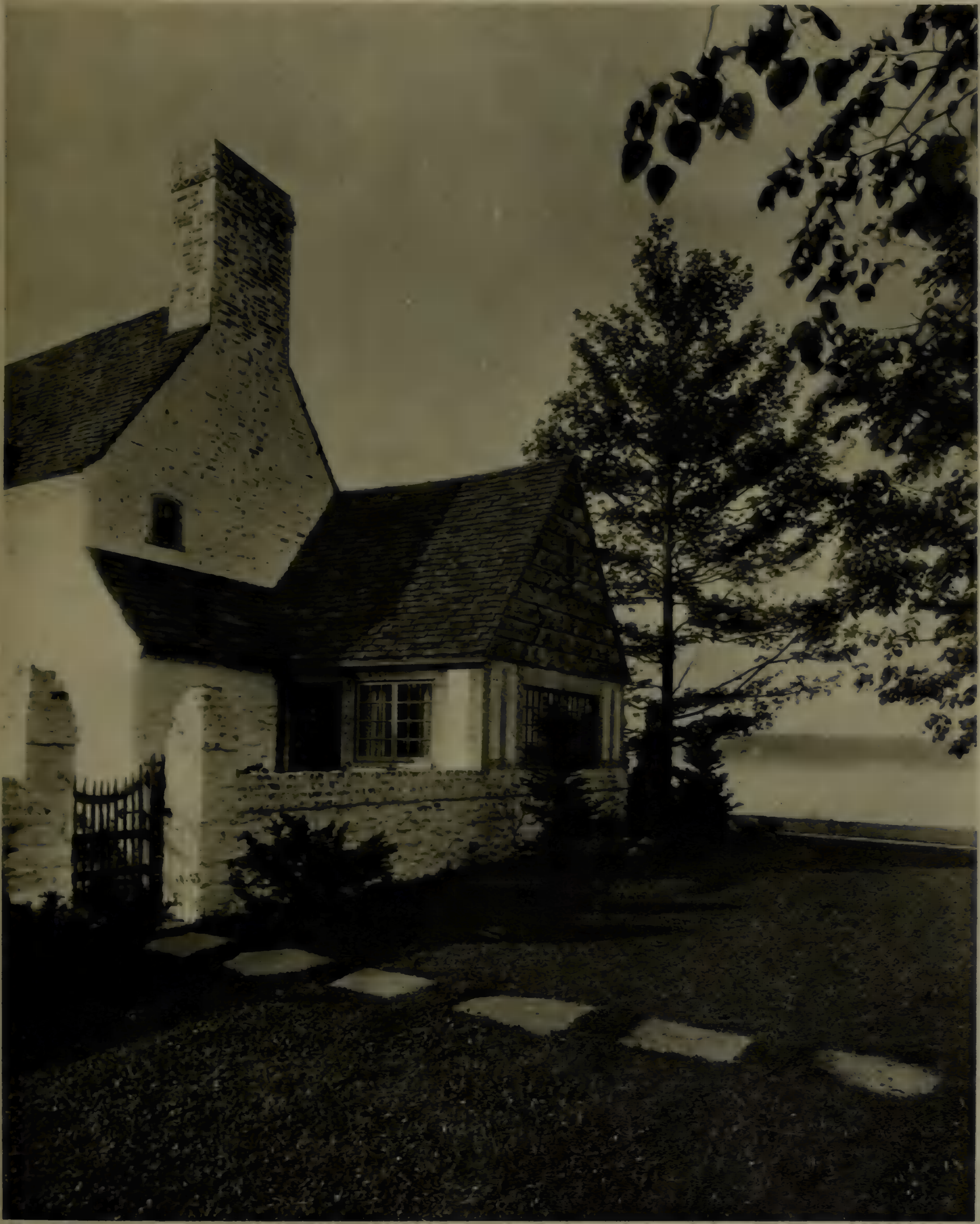


Photo. Gillies

Gate and Sun Room
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

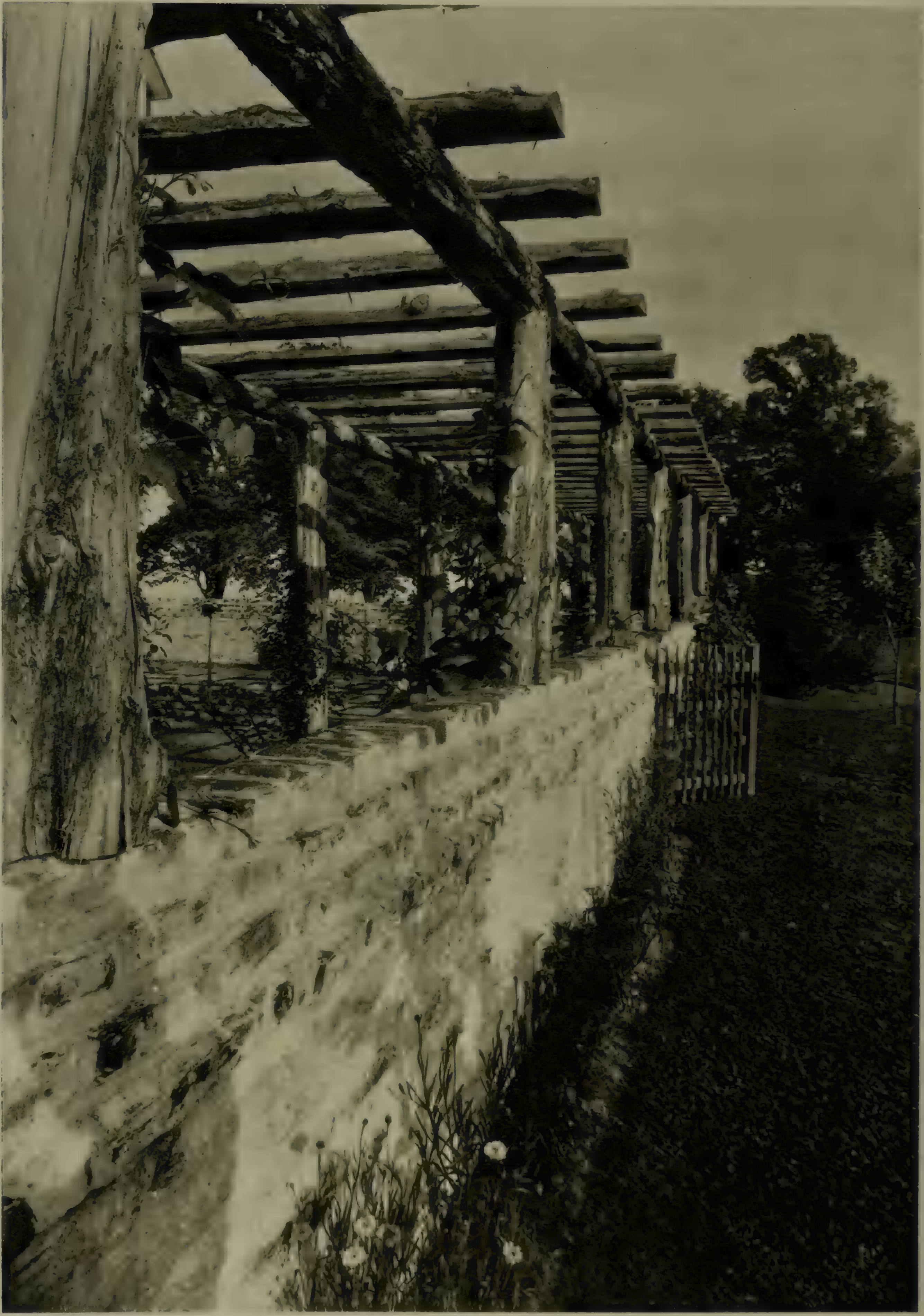


Photo. Gillies

Pergola and Gate
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

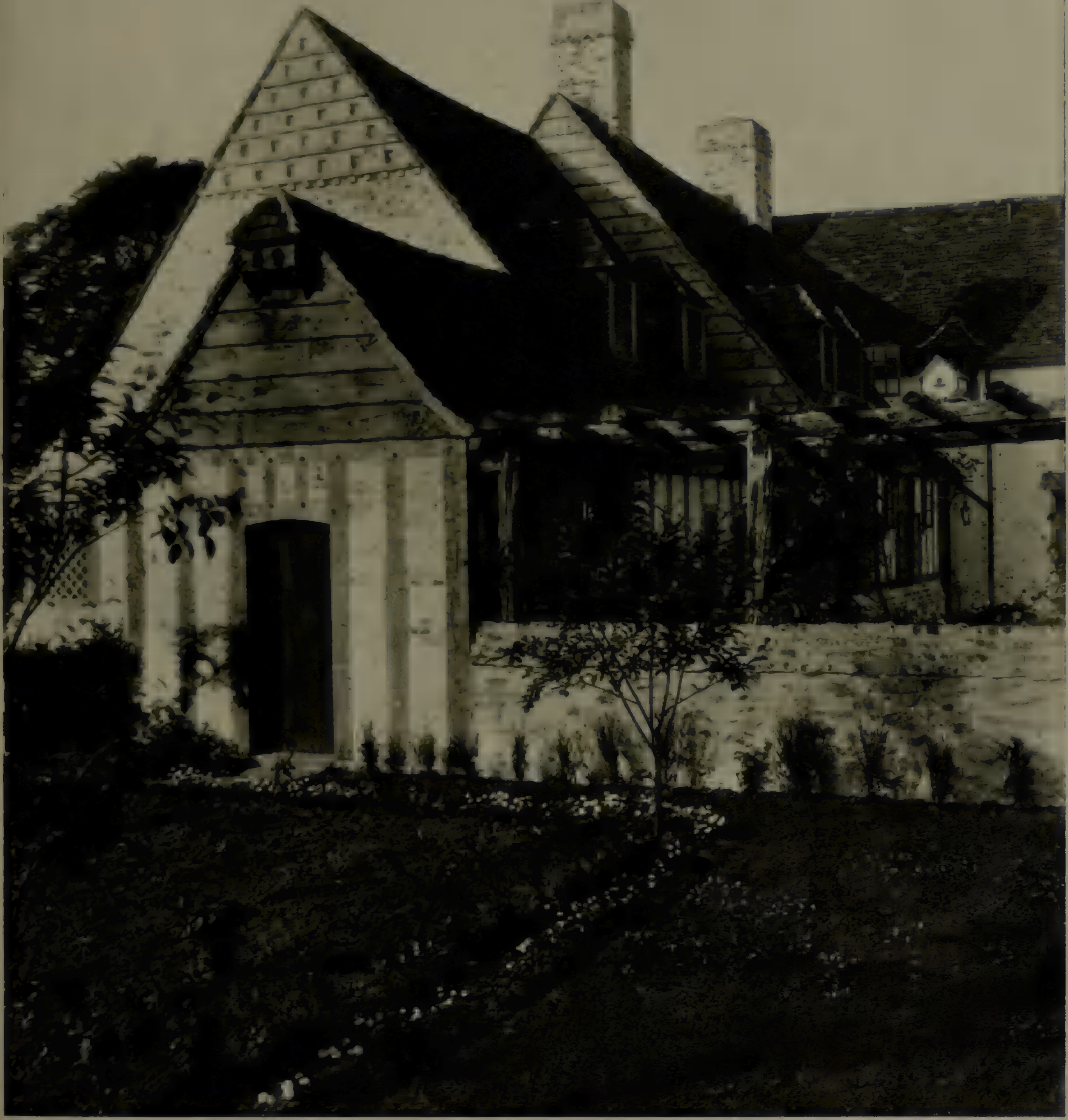


Photo Gillies

Service Wing
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER ARCHITECT

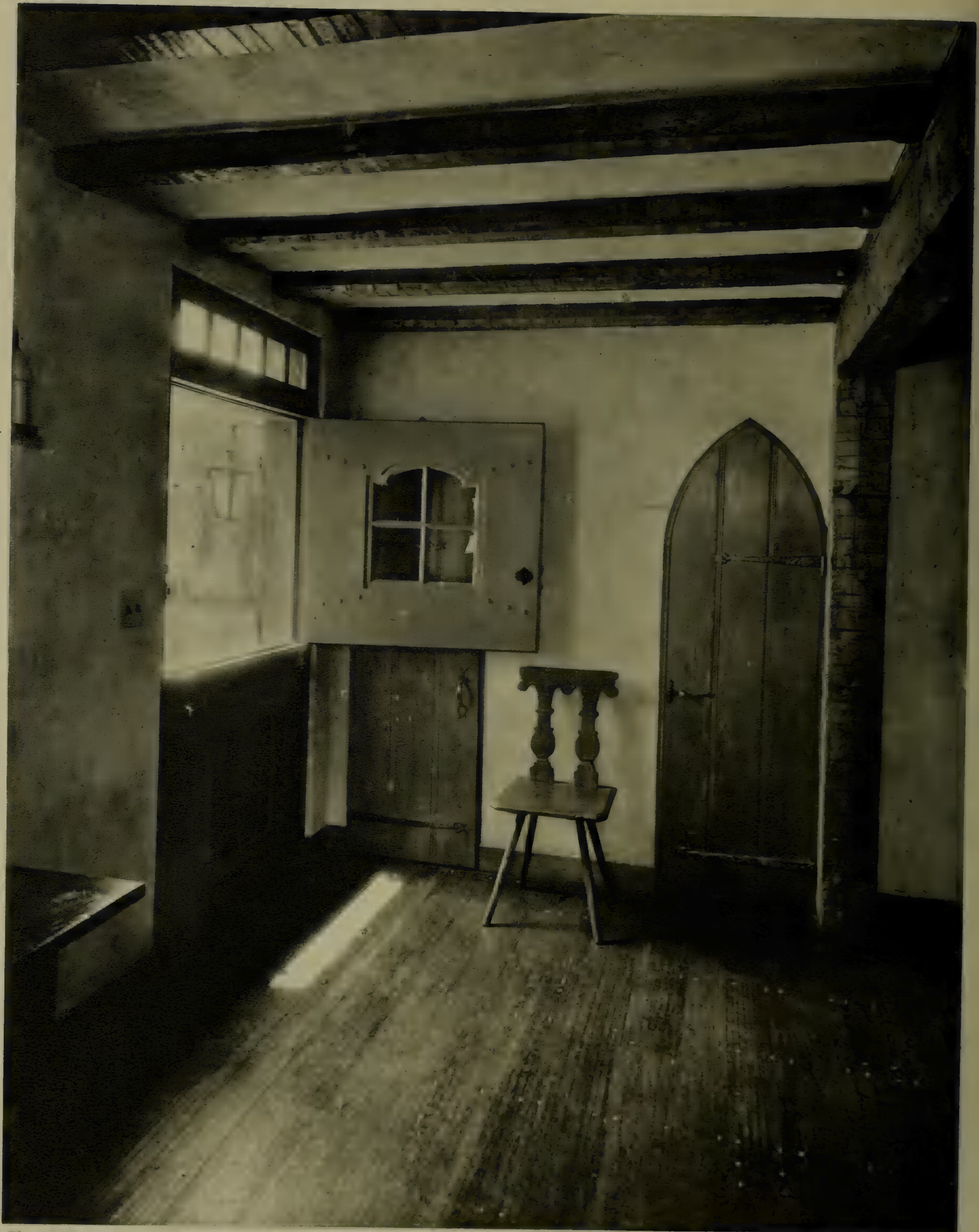


Photo. Gillies

Vestibule
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

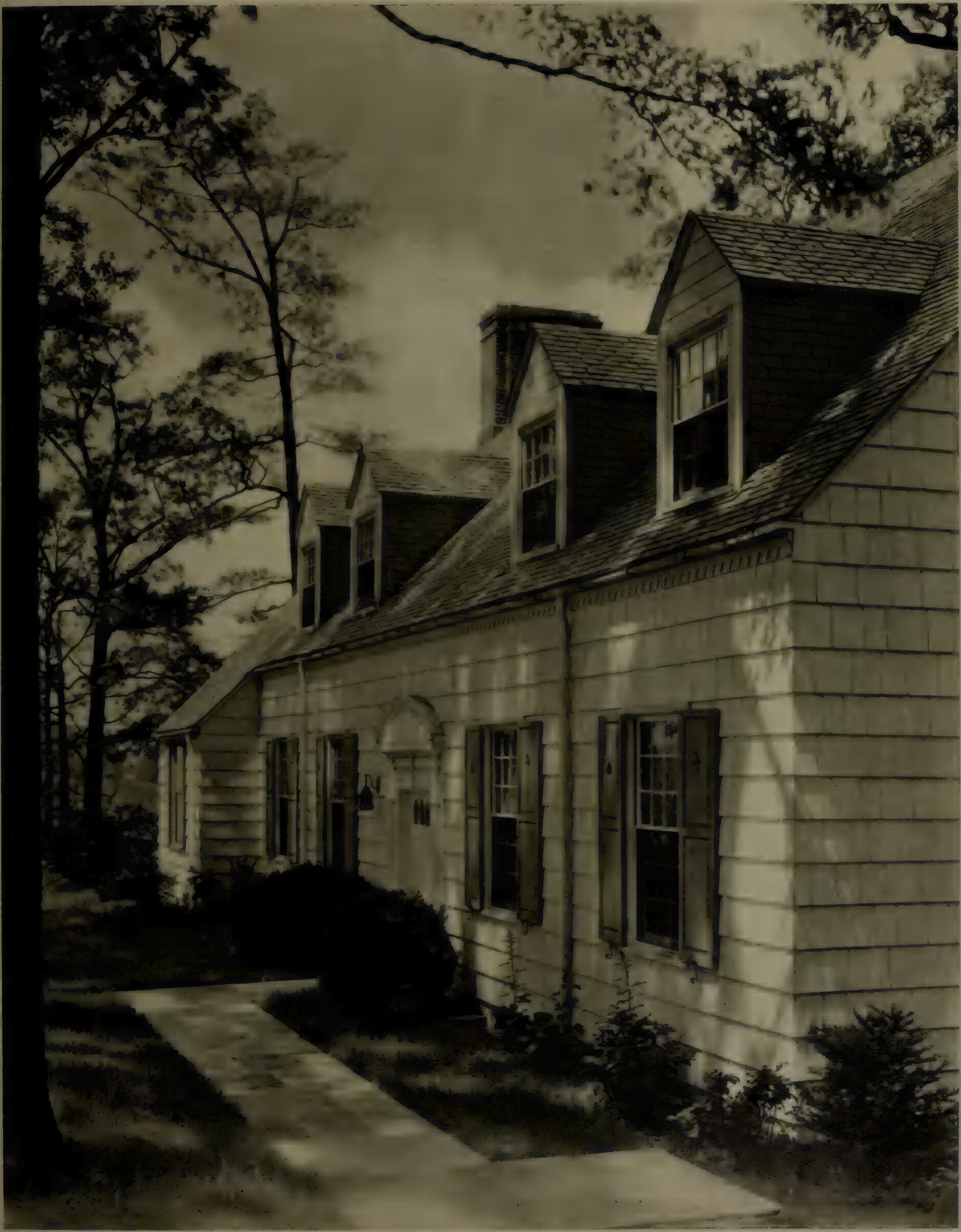


Photo. Tebbs and Knell

House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

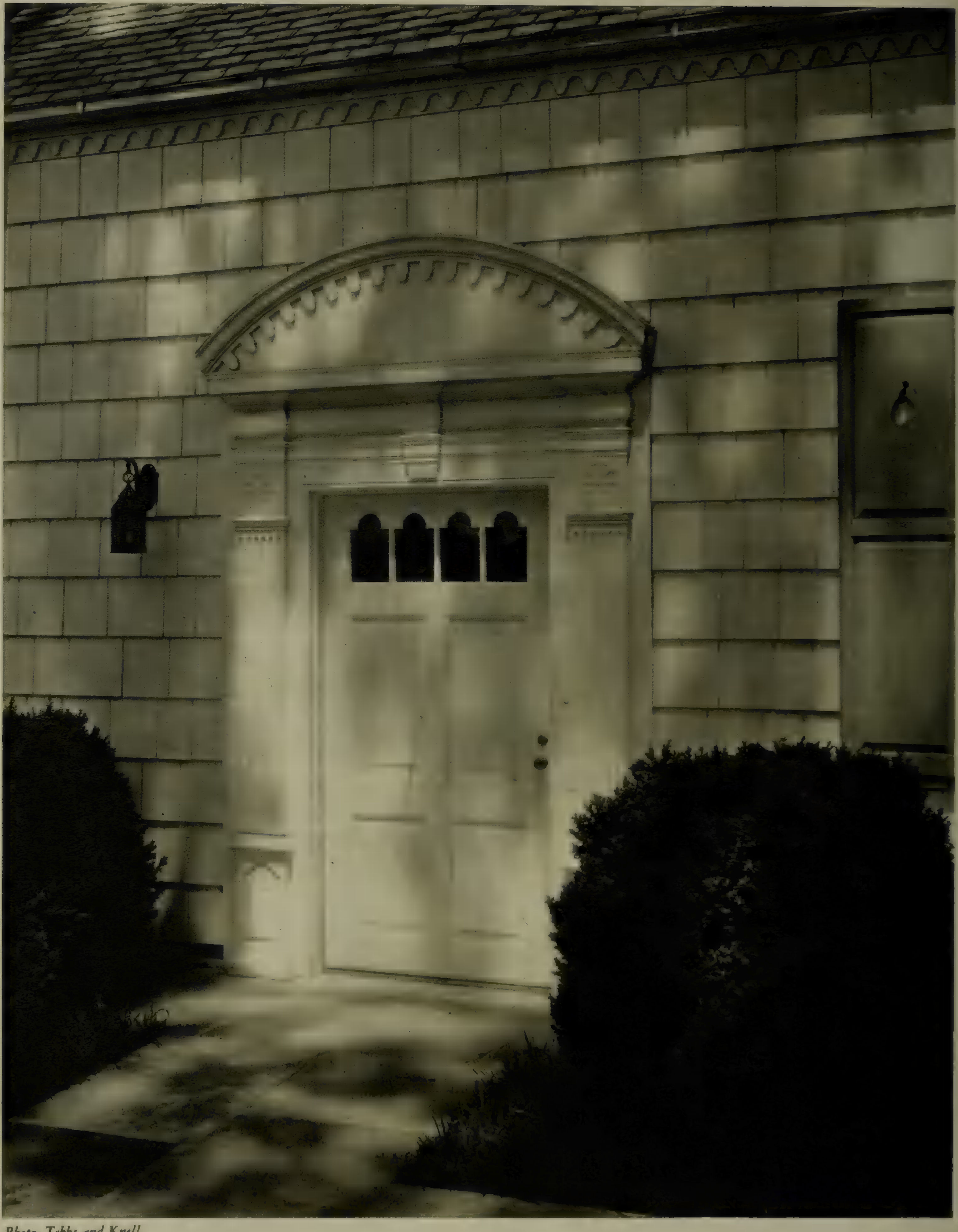


Photo. Tebbs and Knell

Entrance Detail
House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

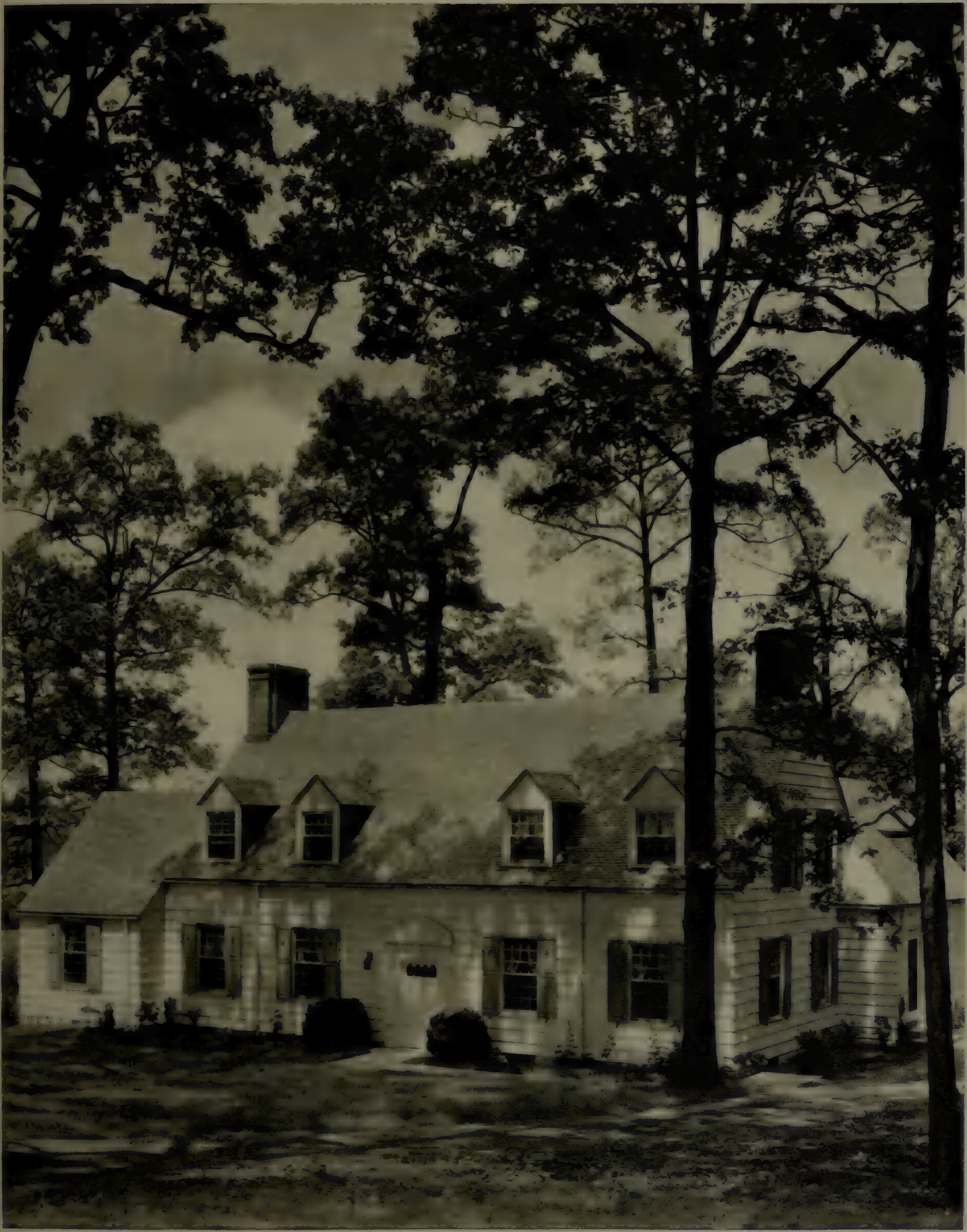


Photo. Tebbs and Knell

House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

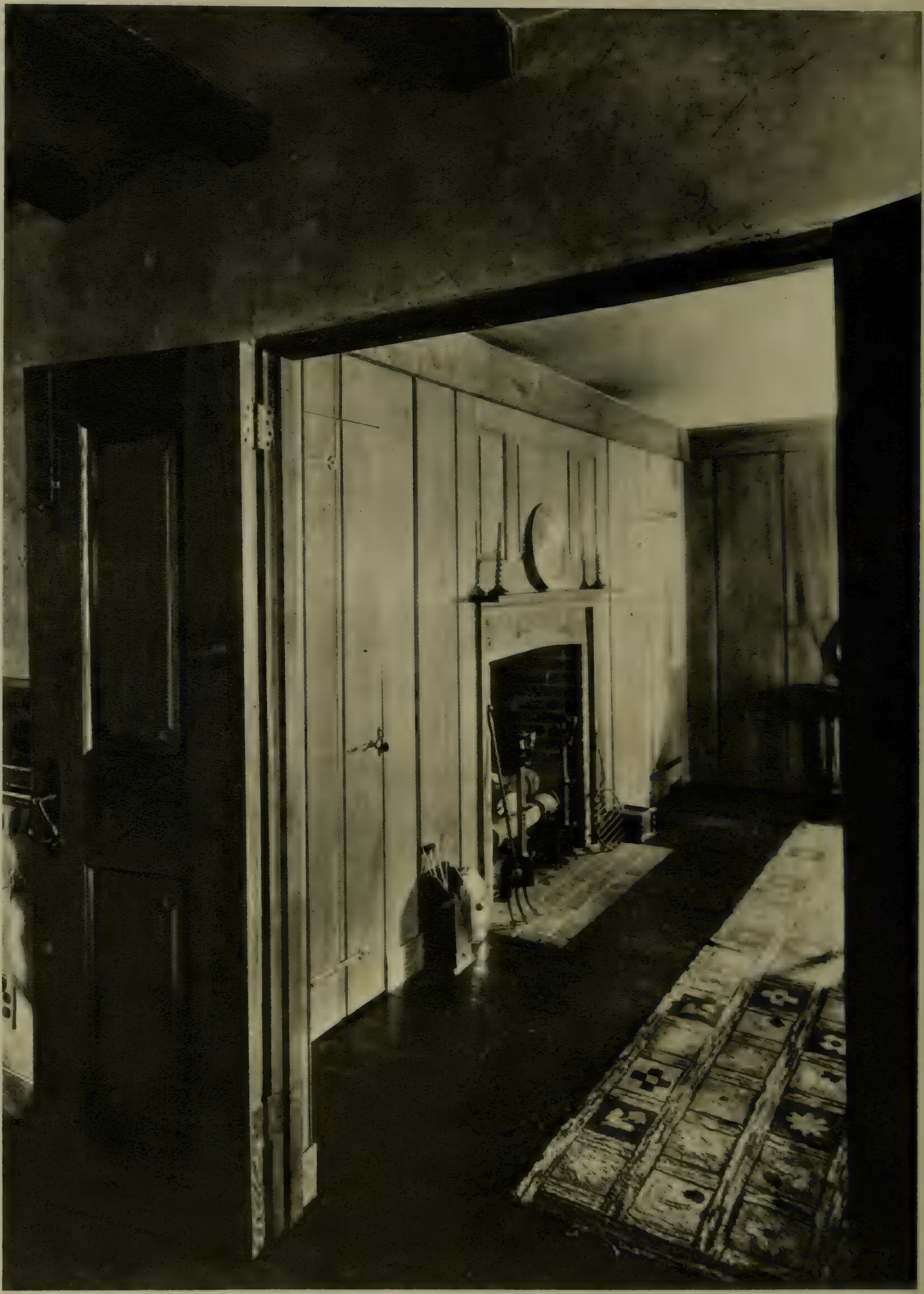


Photo. Tebbs and Knell

Fireplace in Dining Room
BARBER AND MCMURRY, ARCHITECTS
House for Hugh Goforth, Knoxville, Tenn.

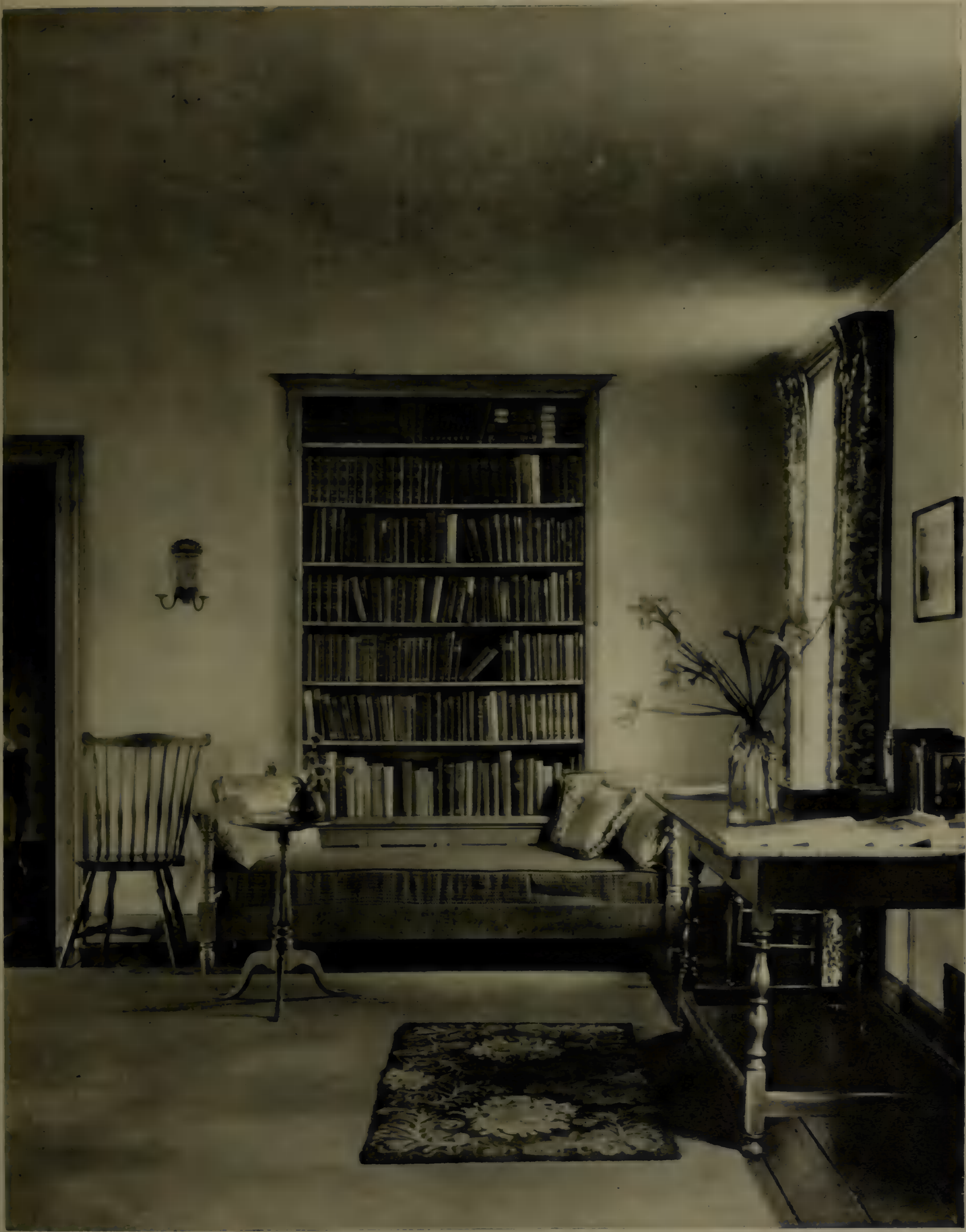
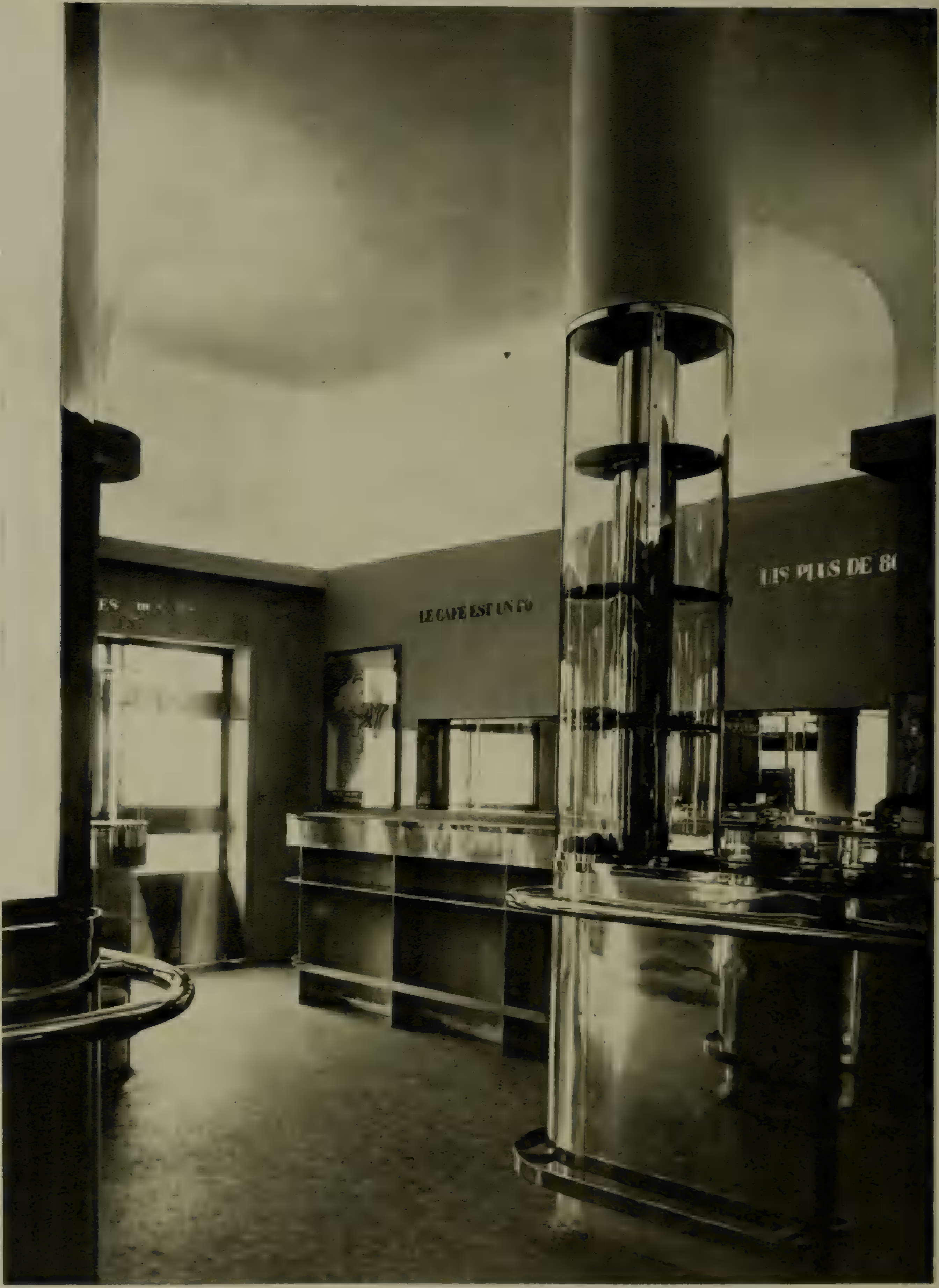


Photo. Tebbs and Knell

Library and Living Room
House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS



Interior of a Café, Avenue Wagram, Paris
ROB MALLET-STEVENS, ARCHITECT

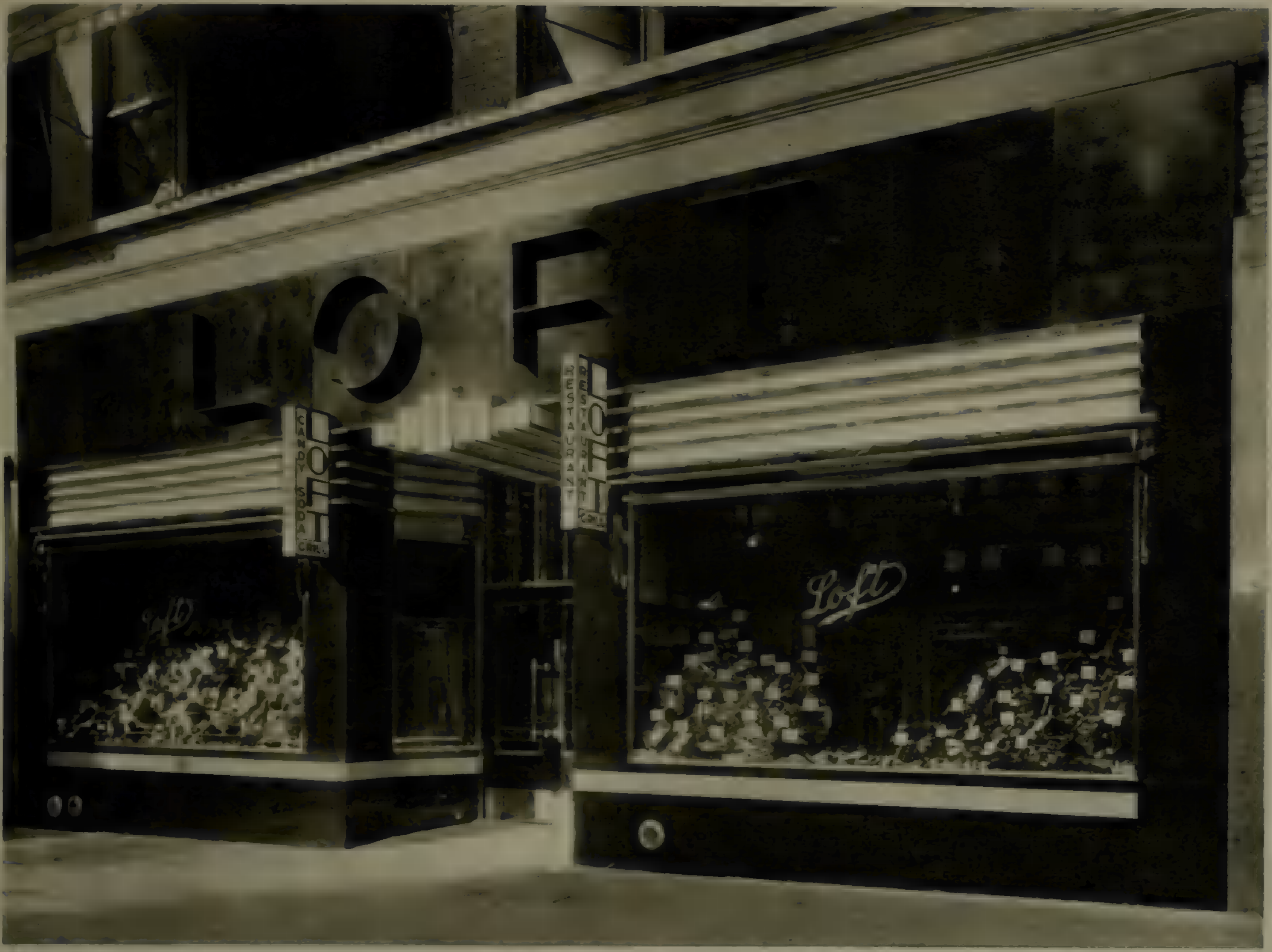
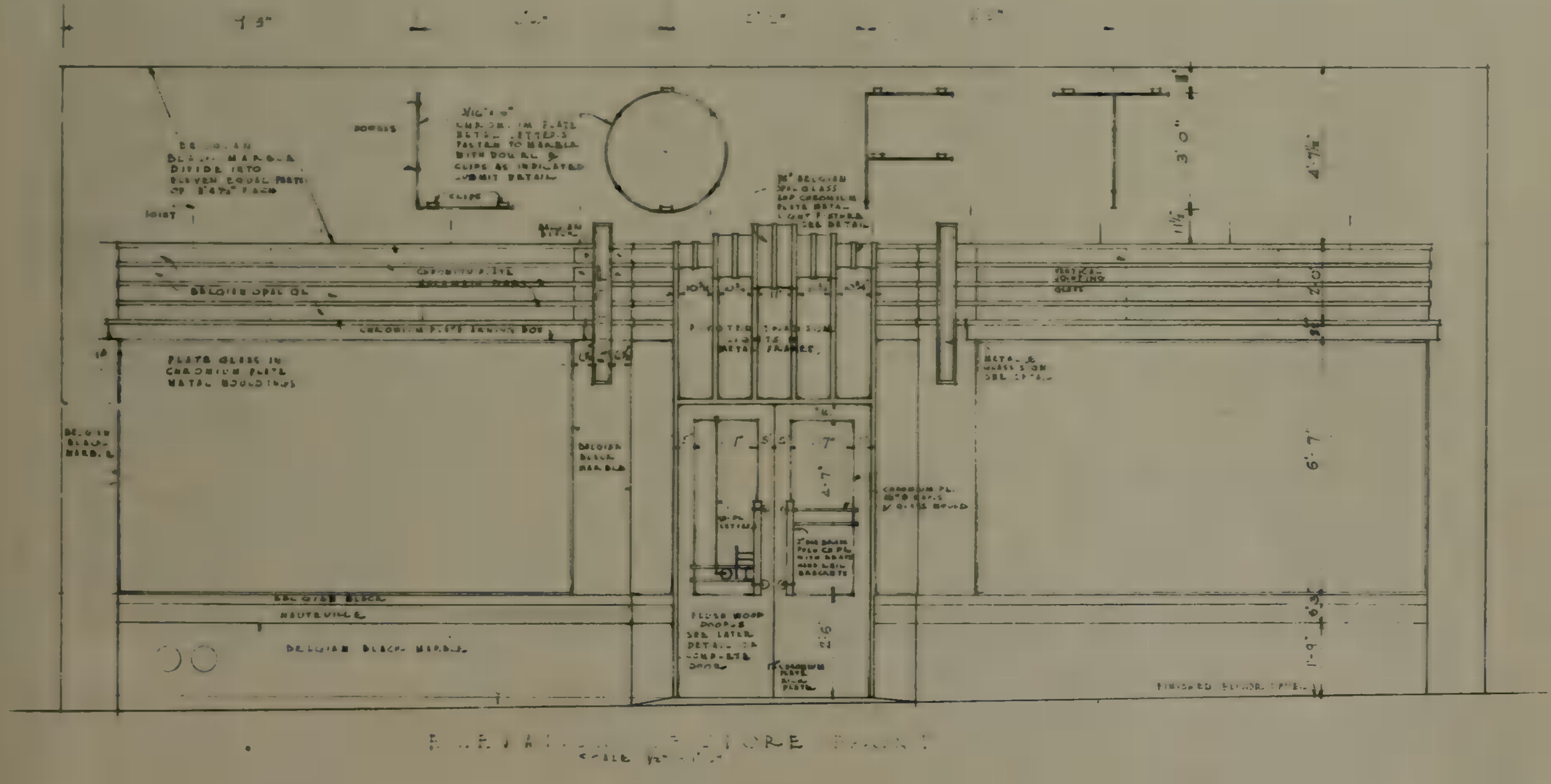


Photo. Apeda

Store Front


DOWELS
CHROMIUM PLATE METAL LETTERS FASTEN TO MARBLE WITH DOWEL & CLIPS AS INDICATED SUBMIT DETAIL
CLIPS
JOINT
BELGIAN OPAL GL
CHROMIUM PLATE AWNING BOX
PLATE GLASS IN CHROMIUM PLATE METAL MOULDINGS
BELGIAN BLACK MARBLE
FLUSH WOOD DOORS SEE LATER DETAIL TO COMPLETE DOOR
3'-0"
4'-7½"
6'-7"
FINISHED FLOOR
STORE

Loft, Inc., 2465 Broadway, New York

THOMPSON AND CHURCHILL, ARCHITECTS

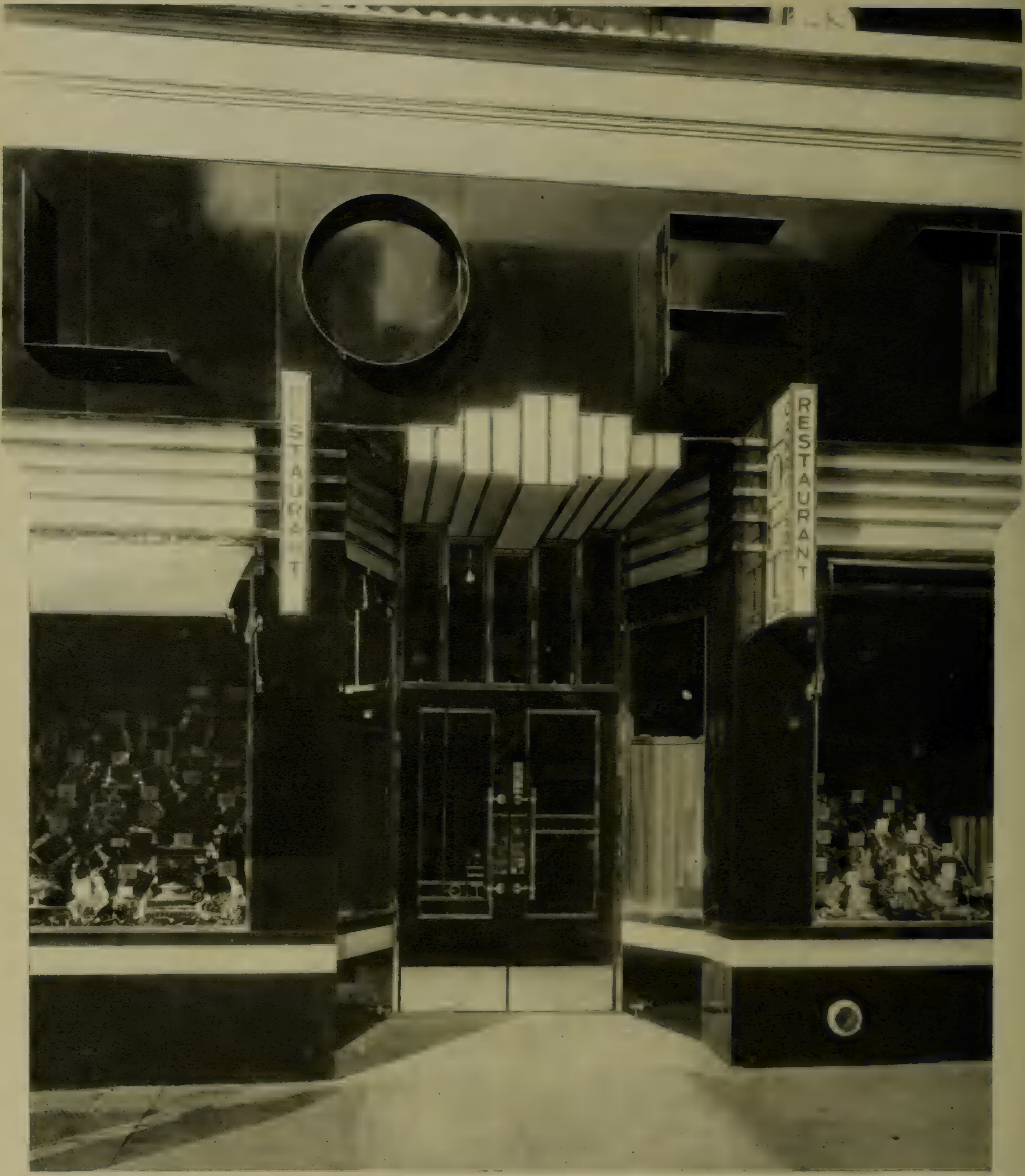


Photo. Apeda

Store Front
Loft, Inc., 2465 Broadway, New York
THOMPSON AND CHURCHILL, ARCHITECTS

BASEMENT GRILL ROOM
STORE FOR LOFT, INC.
THOMPSON AND CHURCHILL, ARCHITECTS

The awkward beams were accepted and converted into an asset by clever mural painting done by Alfred V. Tulk, of Rambusch, Decorator

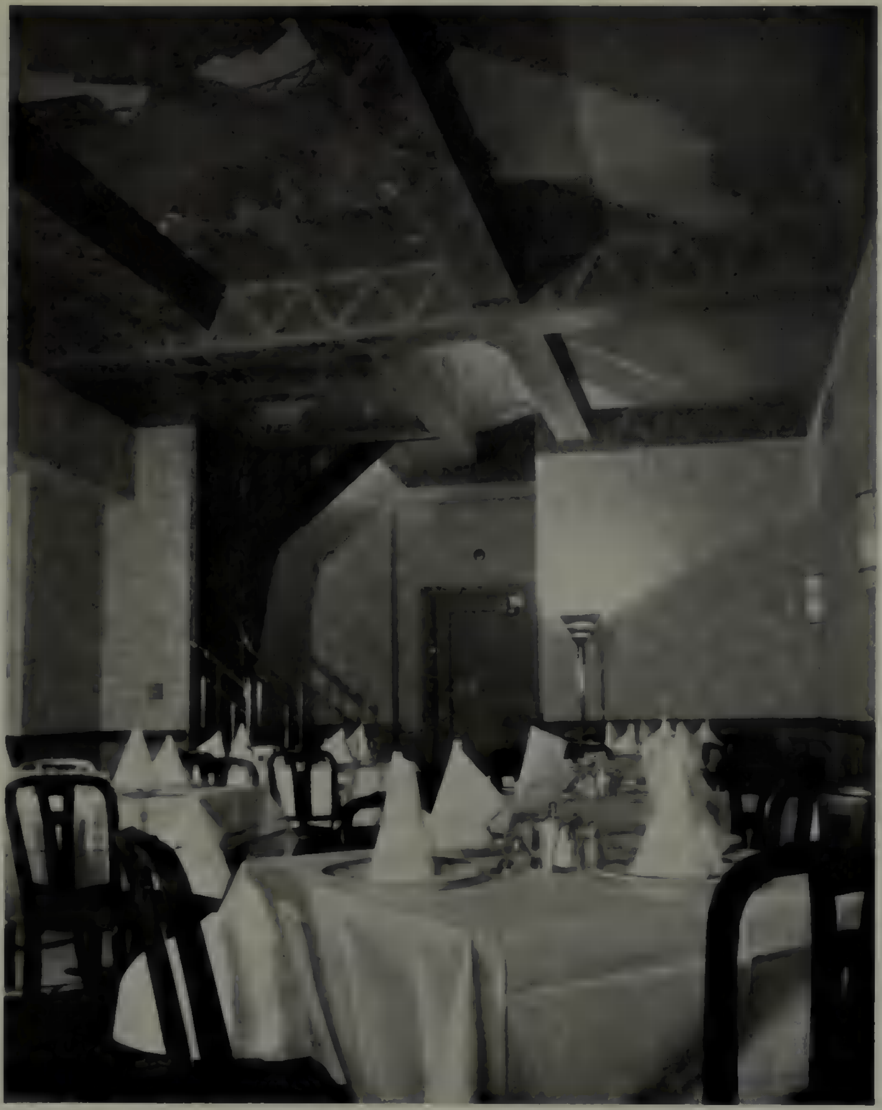


Photo. Apeda

STORE FOR LOFT, INC., NEW YORK CITY

THOMPSON AND CHURCHILL, ARCHITECTS

This is a combination candy store, soda counter and restaurant occupying the basement and ground floor. There were few opportunities for any innovations in interior planning and the architects' advice against elaborate ventilating and air cooling systems taking up the small available space was not followed. The architects' contribution was mainly in the treatment of the basement and in the store front.

■

MURAL PAINTING ON CEILING BEAMS

In the basement was found a complicated arrangement of posts and beams that it was thought better not to cover with furring. A novel and amusing solution was to have the beams painted in a conventionalized imitation of steel trusses and have structural steel workers painted on the ceiling. The painting was done by Alfred V. Tulk, of Rambusch, Decorator.

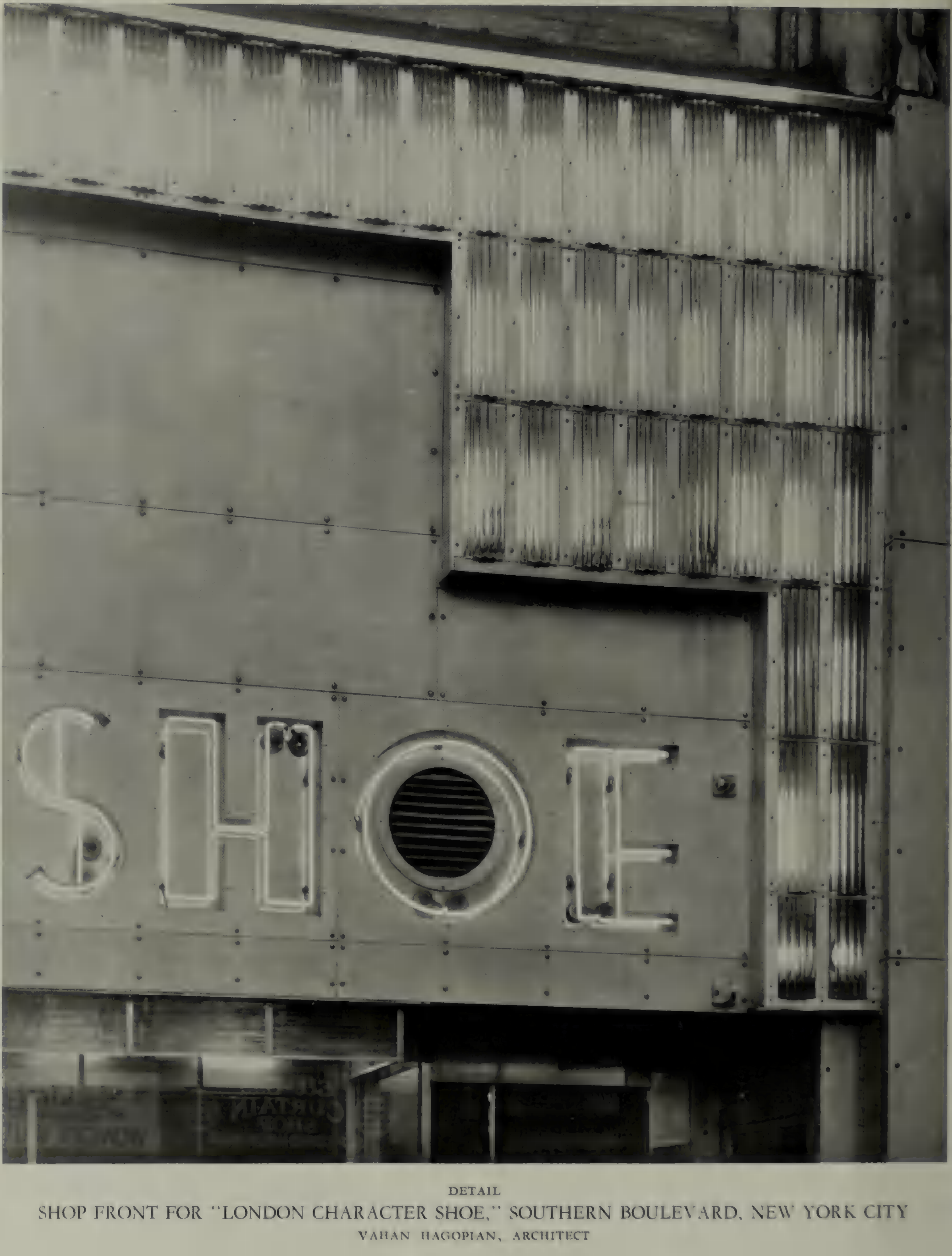
■

SHOP FRONT

The color of the front is a striking contrast of black and chromium nickel with the rear panels of the show windows in the warm brown of zebra wood. The facing is of Belgian black marble, with a band of Heauteville yellow marble under the glass. The lettering and trim are chromium plate and the louvres above the windows of Belgian opal glass.

Two niches in zebra wood flank the entry way and give an opportunity for a special display of a few objects.

Movable wooden display forms were provided in geometric shapes to harmonize with the rest of the design.



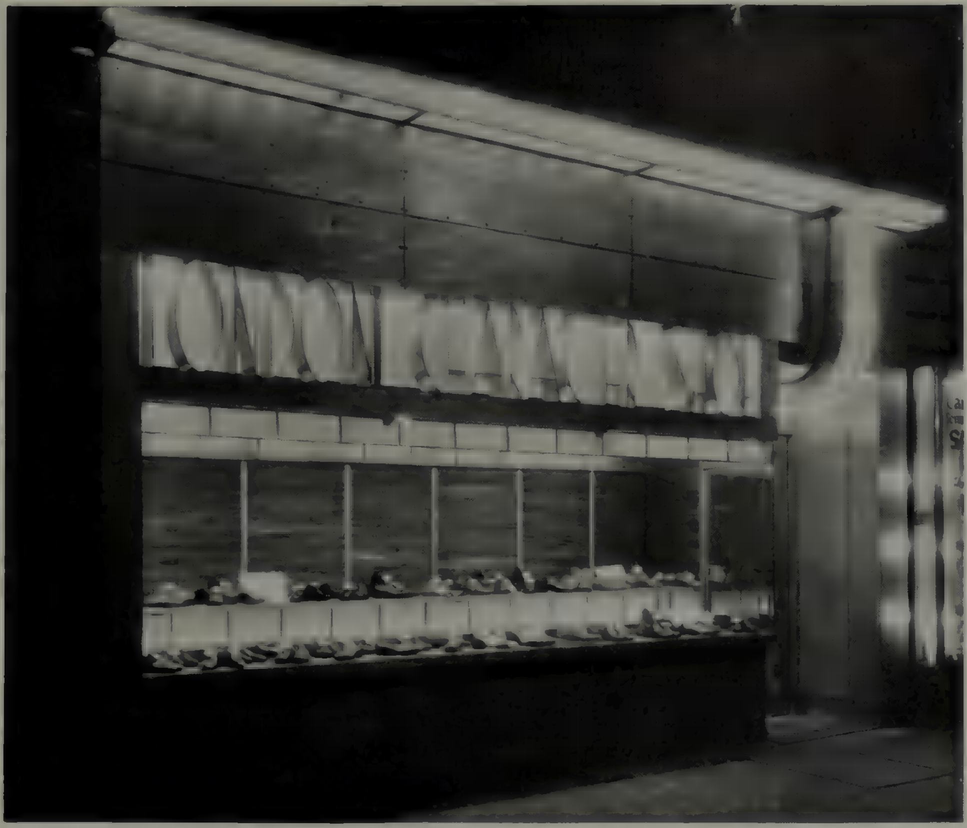
DETAIL
SHOP FRONT FOR "LONDON CHARACTER SHOE," SOUTHERN BOULEVARD, NEW YORK CITY
VAHAN HAGOPIAN, ARCHITECT

BY NIGHT

•

SHOP FRONT FOR "LONDON CHARACTER SHOE" NEWARK, N. J.
VAHAN HAGOPIAN, ARCHITECT

The Neon tubes lead the eye to the entrance. The sheet aluminum letters lit from behind, preserve the "thick and thin" elements of type



THREE "LONDON CHARACTER SHOE" STORES

VAHAN HAGOPIAN, ARCHITECT

DESIGN ELEMENTS

Store show windows are frequently too high. The eye is led upwards and away from the display of goods. The glass catches reflections from across the street and has no positive color of its own. By reducing the window height the designer of these stores has made possible a better focused display. Meanwhile the large area above the glass is regained for use as a *publicity poster*.

In all cases (see the succeeding pages) the aim has been to "group the interests", and in all of them the lines of the "poster", an integral part of the design, lead the eye to the entrance.

A further theory expressed in the design is that the men for whom these stores are planned will not go out of their way to do much "window shopping", so the display is, so to speak, brought out to the sidewalk: the window with its display shelf gives this impression because it projects beyond the base of the store.

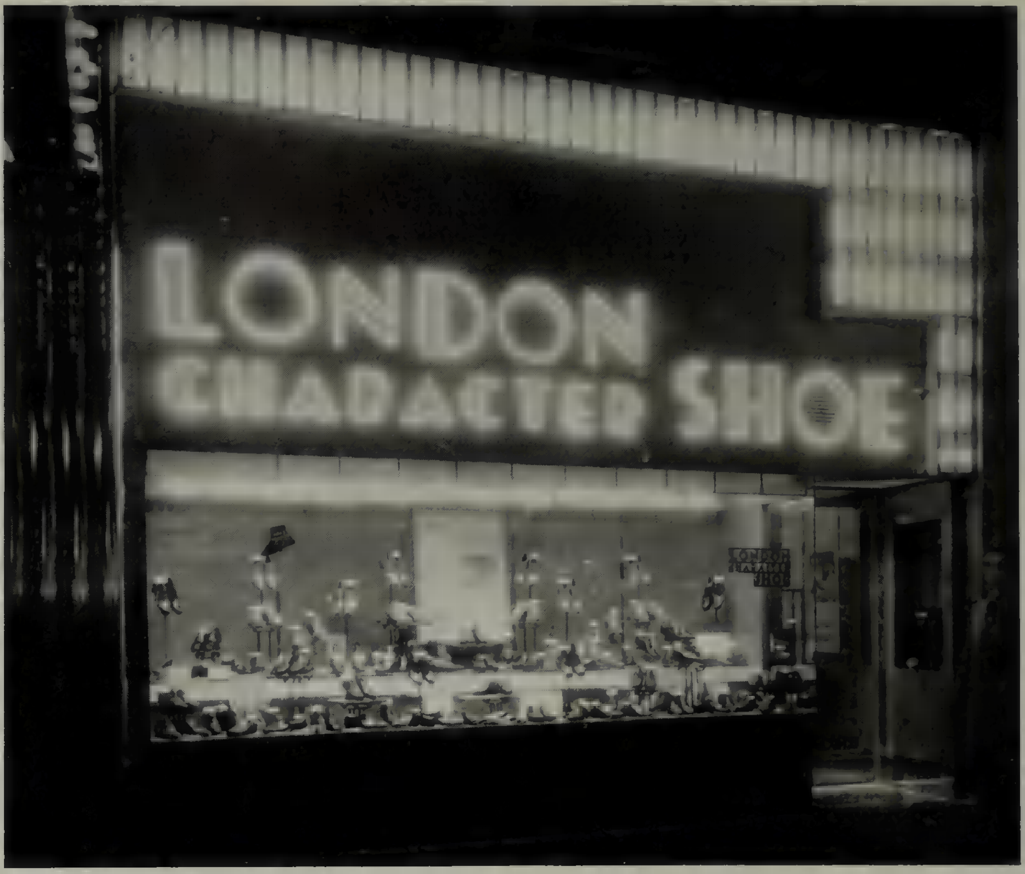
FITTING TWO STORES UNDER ONE FRONT

The Pitkin Avenue store was first intended as a "tax payer" of 25-foot frontage. The client was to use 15 feet and his tenant 10 feet. By reducing the glass area the architect was able to run a large sign for the owner all the way across the 25-foot frontage and still give the tenant due publicity. By building the sign integrally with the sheet metal front he sidestepped cumbersome legal provisions requiring that the sign must be at a setback.

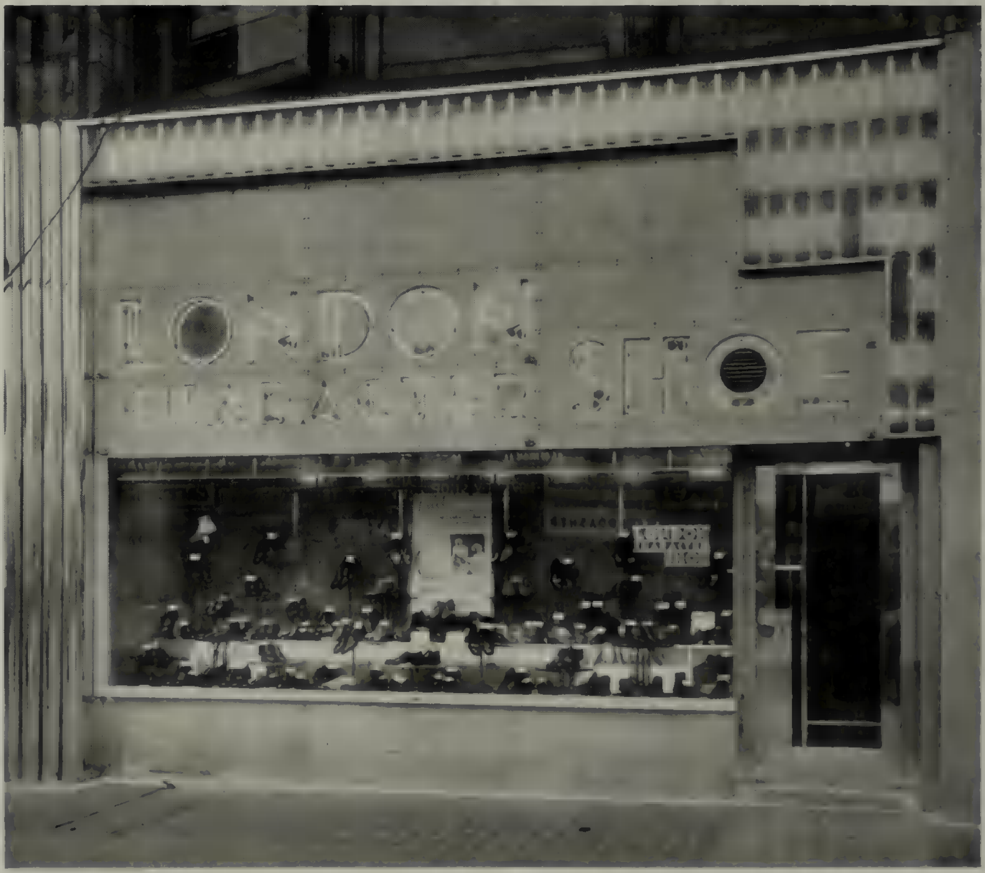
•

MATERIALS

The material used (see also page 145) to face the buildings is chiefly aluminum. It requires no complicated support; its color always attracts attention, and it was considered the easiest metal to keep clean. The sheets are the largest obtainable, in heavy gauge; the bolting allows free expansion and contraction.

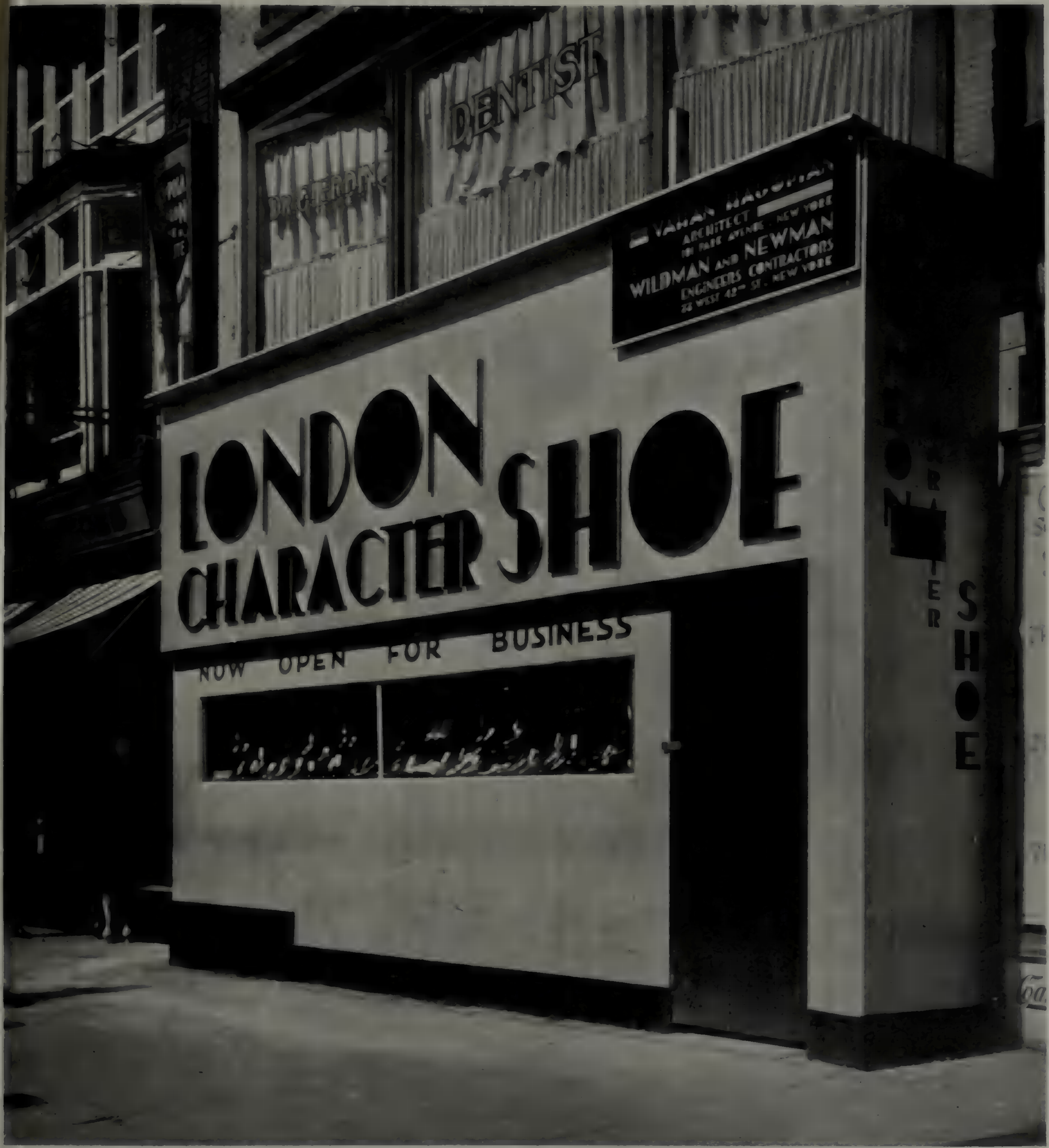


BY NIGHT



BY DAY

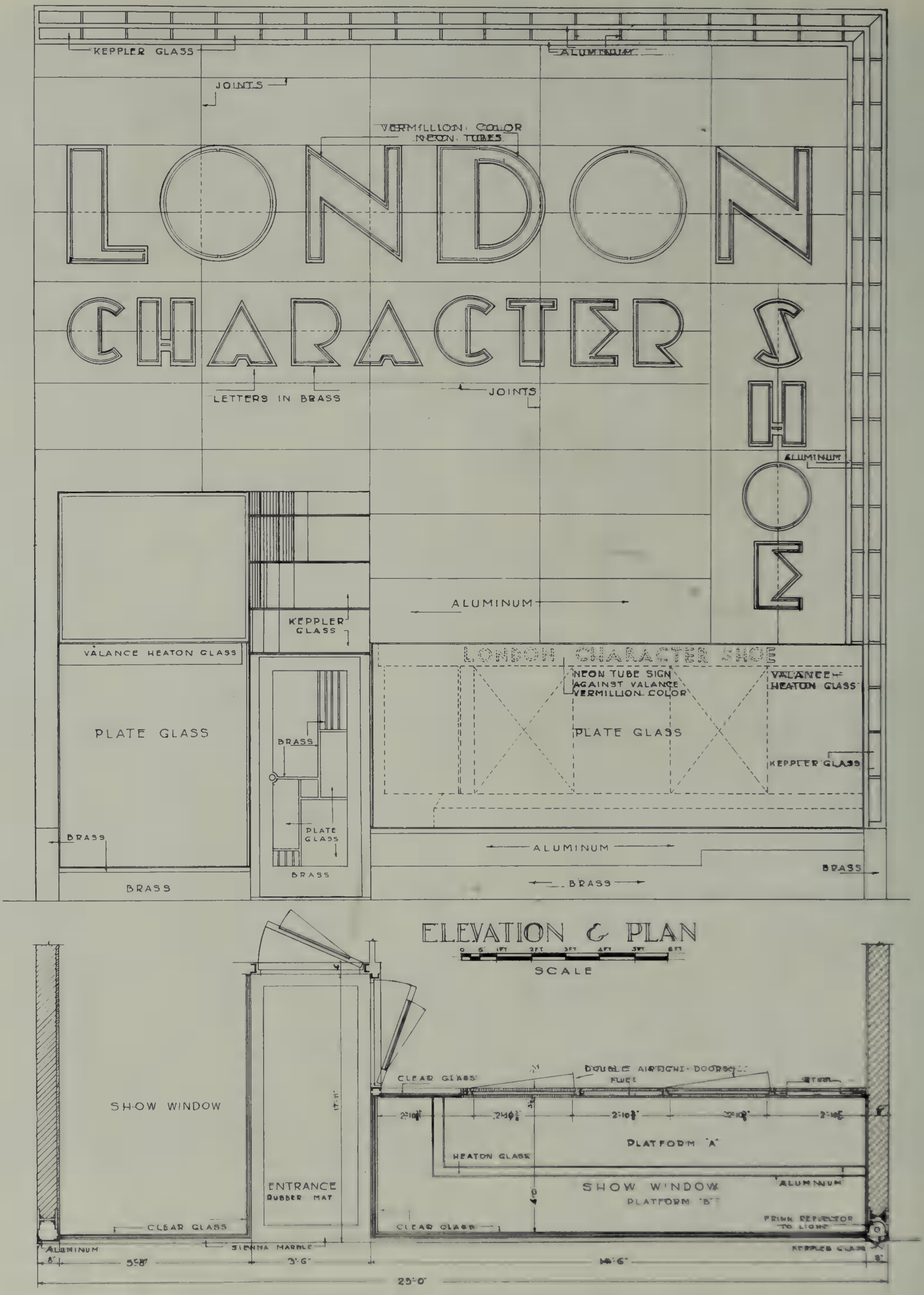
SHOP FRONT FOR "LONDON CHARACTER SHOE,"
957 SOUTHERN BOULEVARD, NEW YORK CITY
VAHAN HAGOPIAN, ARCHITECT



TEMPORARY WOOD FENCE

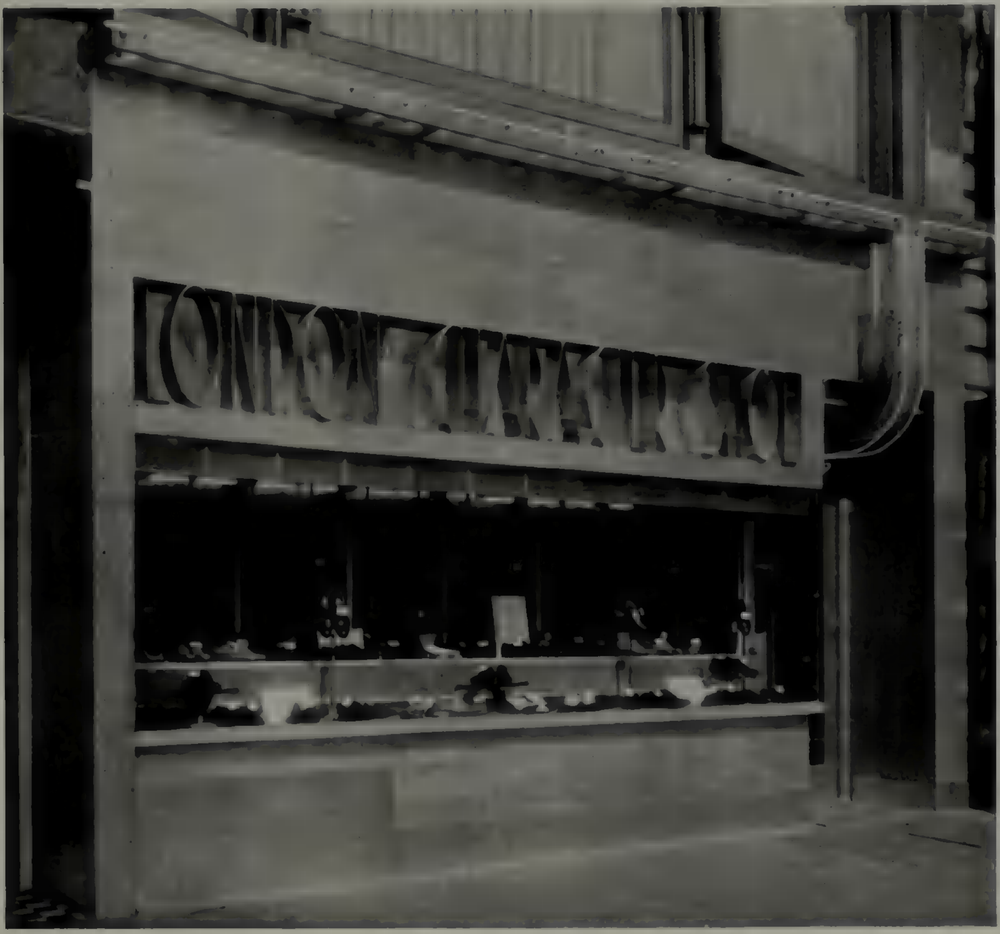
VAHAN HAGOPIAN, ARCHITECT

Built in place at the Broad Street, Newark, store, this was taken apart and re-erected on the Southern Boulevard job (pictured on page 139), enabling the shoe company to carry on business uninterrupted



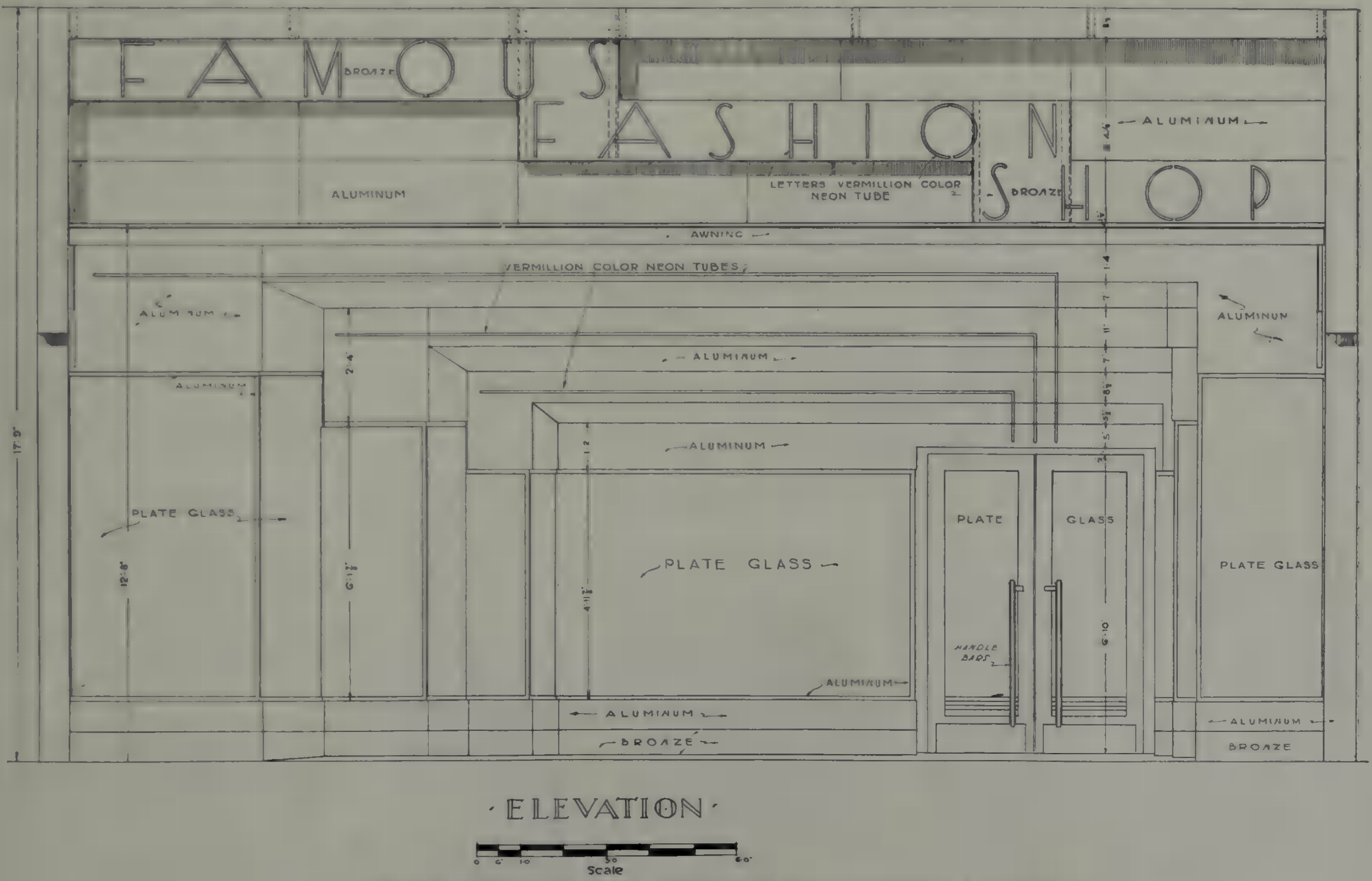
SHOP FRONT FOR "LONDON CHARACTER SHOE," PITKIN AVENUE, BROOKLYN

VAHAN HAGOPIAN, ARCHITECT



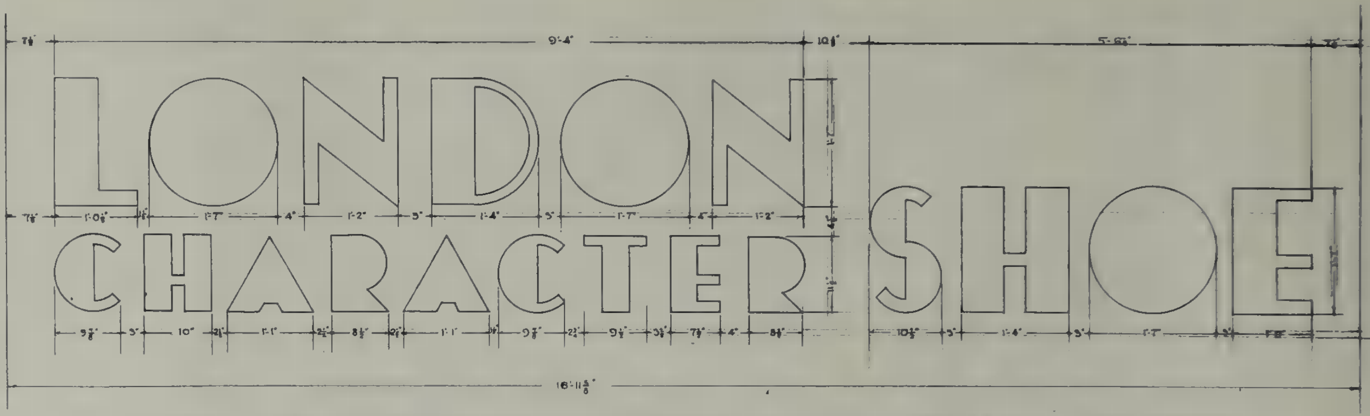
SHOP FRONT FOR "LONDON CHARACTER SHOE," BROAD STREET, NEWARK, N. J.

VAHAN HAGOPIAN, ARCHITECT



SHOP FRONT FOR "FAMOUS FASHION" SHOP

VAHAN HAGOPIAN, ARCHITECT



STORE FRONT LETTERING, VAHAN HAGOPIAN, ARCHITECT. SEE PAGE 140 FOR PHOTO

LETTERING AS AN ELEMENT OF STORE DESIGN

The successful commercial building has its lettering designed as an integral part of the architecture. The character of lettering used and its placement aid in creating a composition. And, above all else, attention must be drawn to the letters by any means whatsoever; by their size, by surrounding space or by color or illumination. Besides attracting attention, they should be easily read. Legibility and a free decorative quality combine as essential attributes for the shop sign.

The alphabet of sign lettering is derived from advertising or poster art and has very little in common with the usual architectural capitals of classical origin.

For the sign that is not illuminated the letters should generally be bold face and contrasted in color and material with their background. Boldness may also be obtained by use of sheet aluminum, monel, chromium plated steel or other metals with letters having depth rather than width (as in illustration, page 143).

The increasing prominence of luminous tubes for signs has placed a new medium of expression at the command of the architect, requiring a new technique and a recognition of the great possibilities for combining color and illuminated designs with building identification. Lighting tubes may compose letters with the freedom of script or they may be combined with cut-out shapes of wood or metal to make the sign effective both by day and night.

Illustrations

The store by V. Hagopian, architect, (page 142) has letters made of sheet iron with 2″ flanges projected from the face. The inside of the flanges and the exposed face of the letters are painted dull red, and have Neon lights (red) on the under side to illuminate the letters.

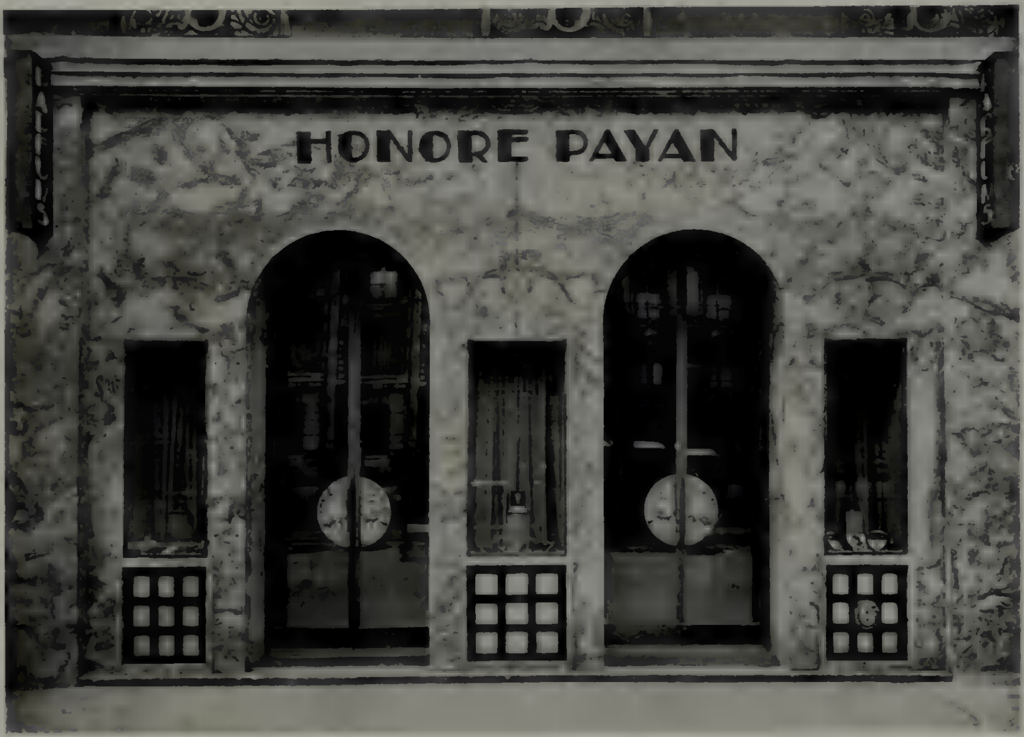
The letters used in the Newark store are of sheet aluminum, seen on edge in elevation, 3/8″ thick and 6″ deep. These letters are seen in perspective with sun shining upon them by day, or light projected from the back at night. They have the thick and thin elements that you would have in ordinary flat letters.

In the Southern Boulevard example the letters are cut out of the surrounding sheet aluminum and sunk back 2″, the back being of brass. A Neon tube is brought flush with the face so that at night the letters are very distinct.

The store by Thompson and Churchill (pages 135–137) has a very effective lettering design. The illumination over the doorway is so designed as to suggest entry, and the lines above the windows also lead naturally to the door.

The architects state that on future similar projects with black background they will use some other material such as dull aluminum, since chromium plate reflects too much black to stand out as it should.

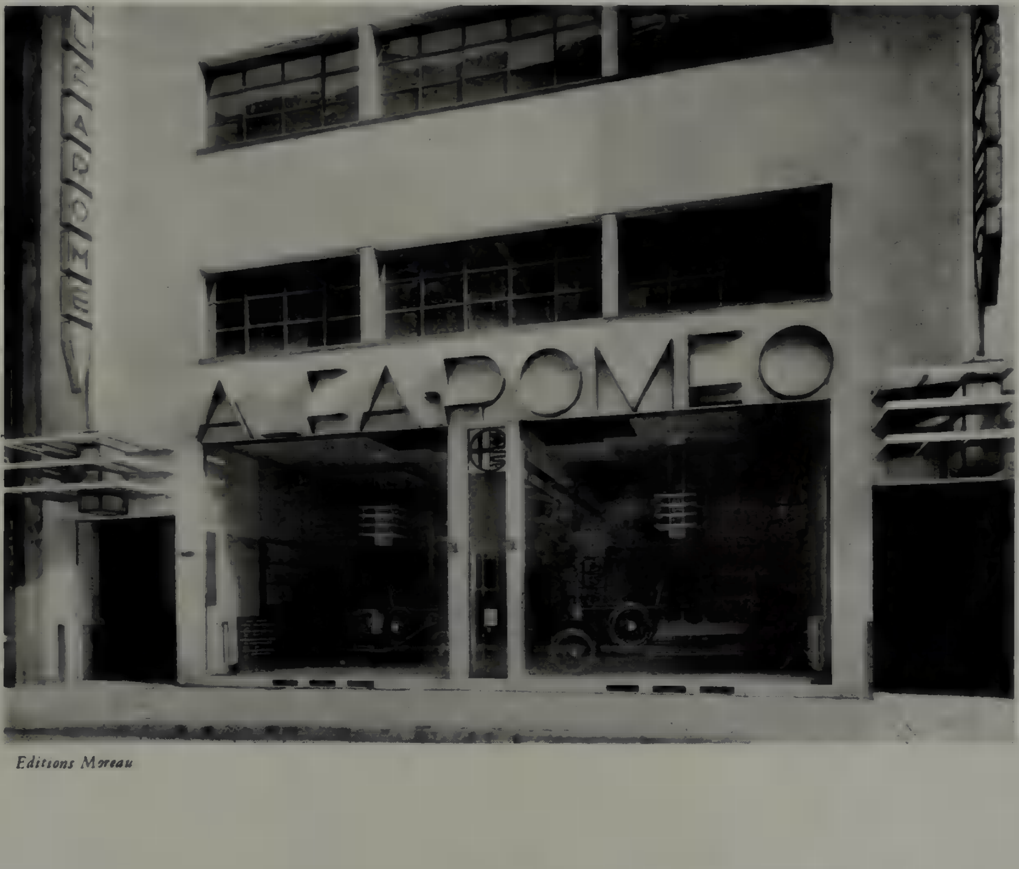
HONORE PAYAN



HONORE PAYAN
PARIS
ERIC BAGGE, ARCHITECT

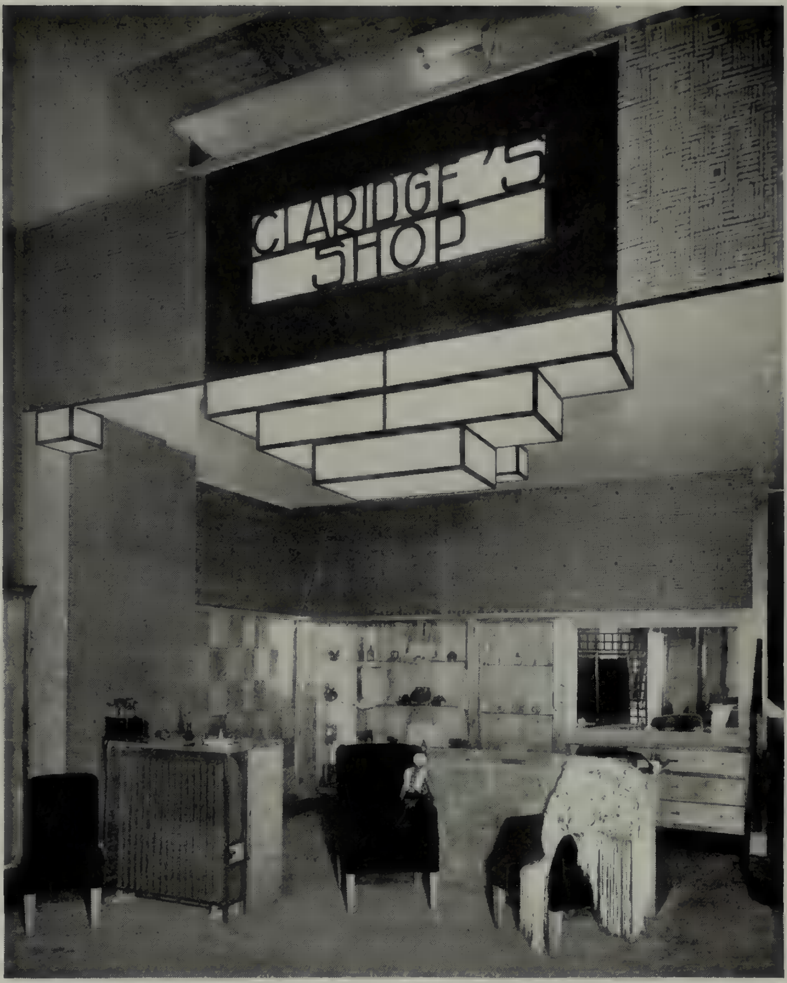
Editions Moreau

ALFA-ROMEO



ALFA ROMEO GARAGE
PARIS
ROB. MALLET-STEVENS,
ARCHITECT.

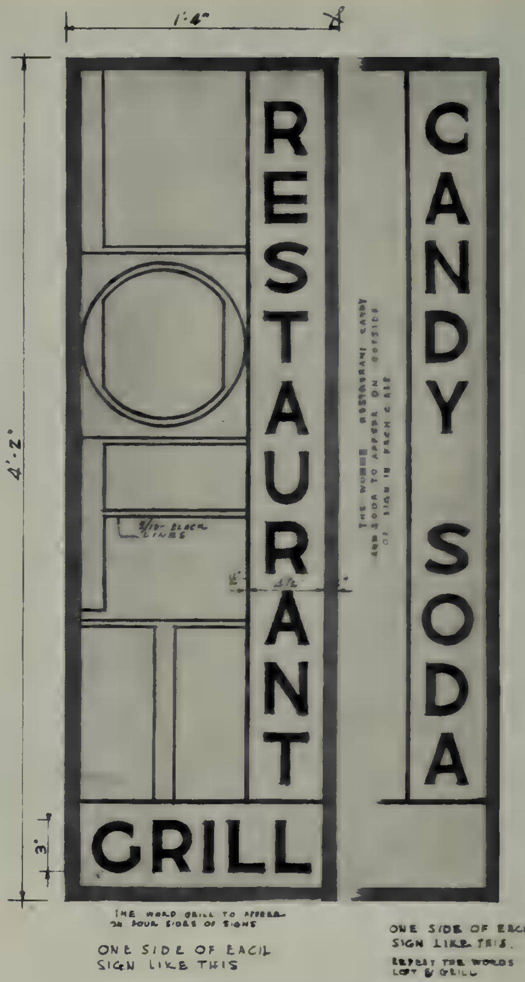
Editions Moreau



Editions Moreau

Upper Left: CLARIDGE'S SHOP, PARIS

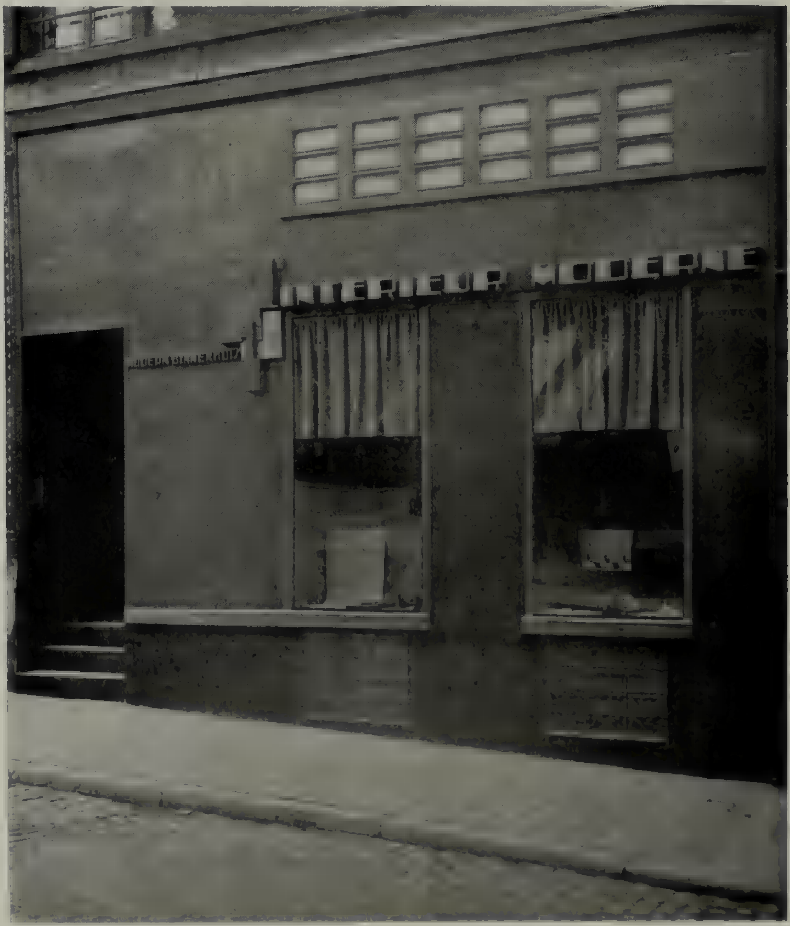
FRANCIS JOURDAIN, ARCHITECT


1'4"
4'2"
3"
RESTAURANT
CANDY SODA
GRILL
3/16" BLACK LINES
THE WORDS RESTAURANT CANDY AND SODA TO APPEAR ON OUTSIDE OF SIGN IN EACH CASE
THE WORD GRILL TO APPEAR ON FOUR SIDES OF SIGNS
ONE SIDE OF EACH SIGN LIKE THIS
ONE SIDE OF EACH SIGN LIKE THIS.
REPEAT THE WORDS LOFT & GRILL

ILLUMINATED BOX SIGN

STORE FOR LOFT, INC.

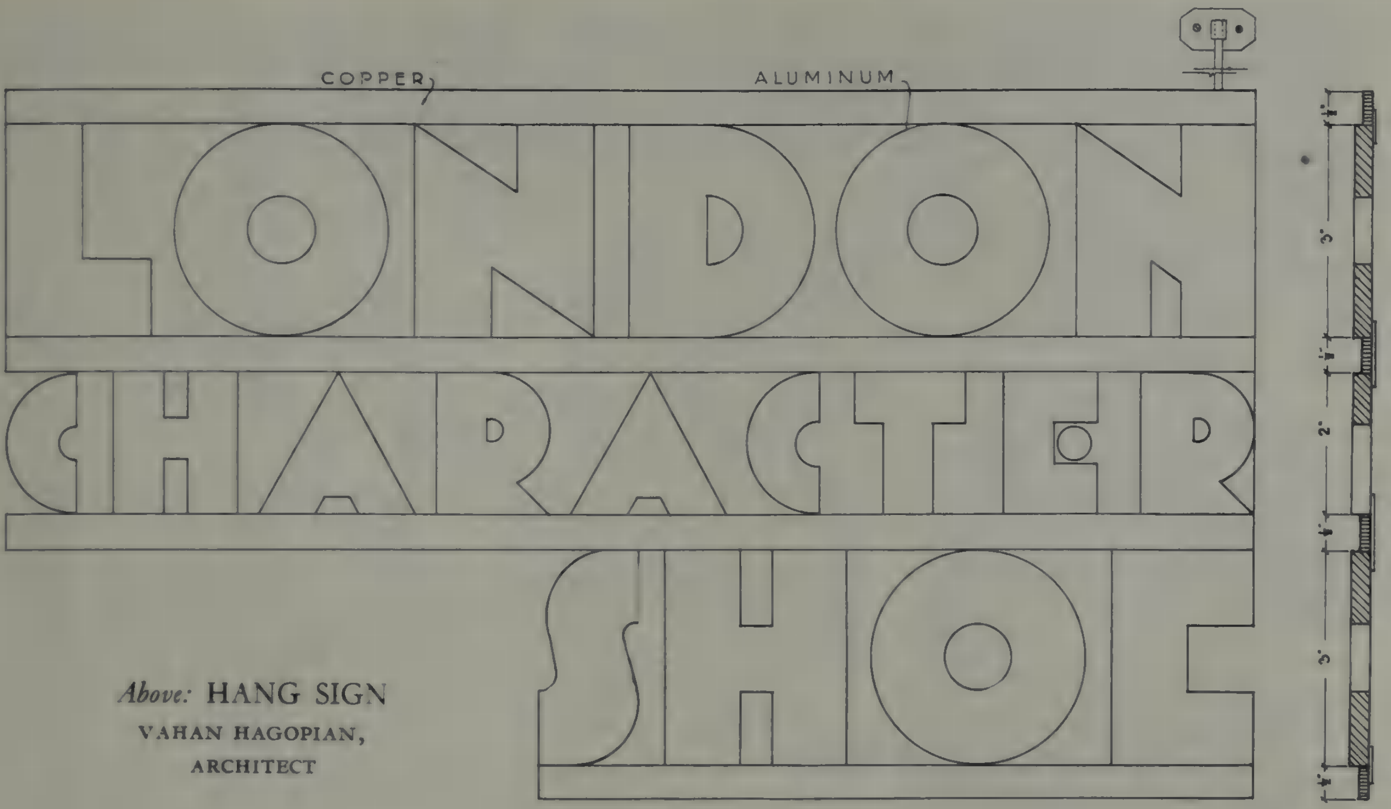
THOMPSON AND CHURCHILL, ARCHITECTS



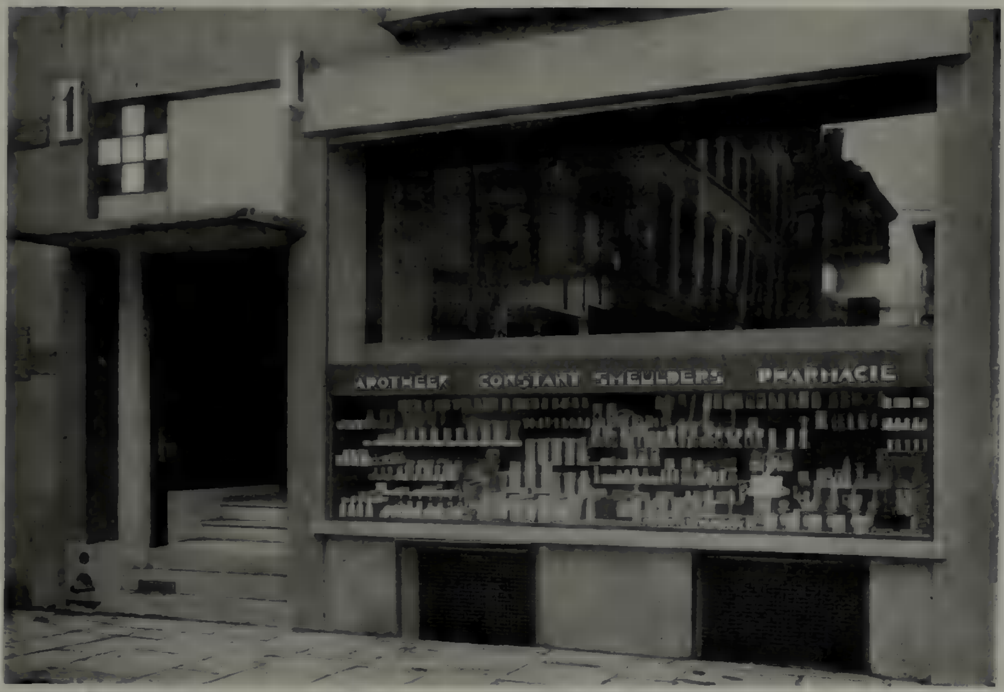
Editions Moreau

Lower Left: L INTÉRIEUR MODERNE, BRUSSELS

VAN TONDEREN, ARCHITECT



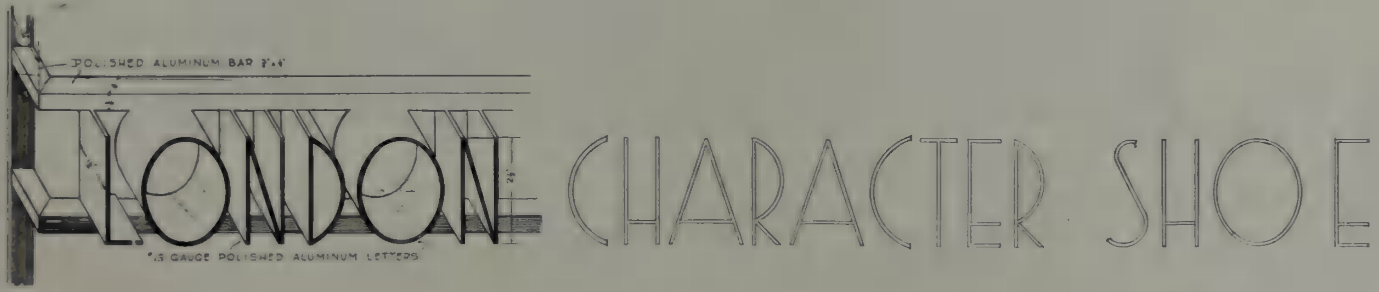
Above: HANG SIGN
VAHAN HAGOPIAN,
ARCHITECT

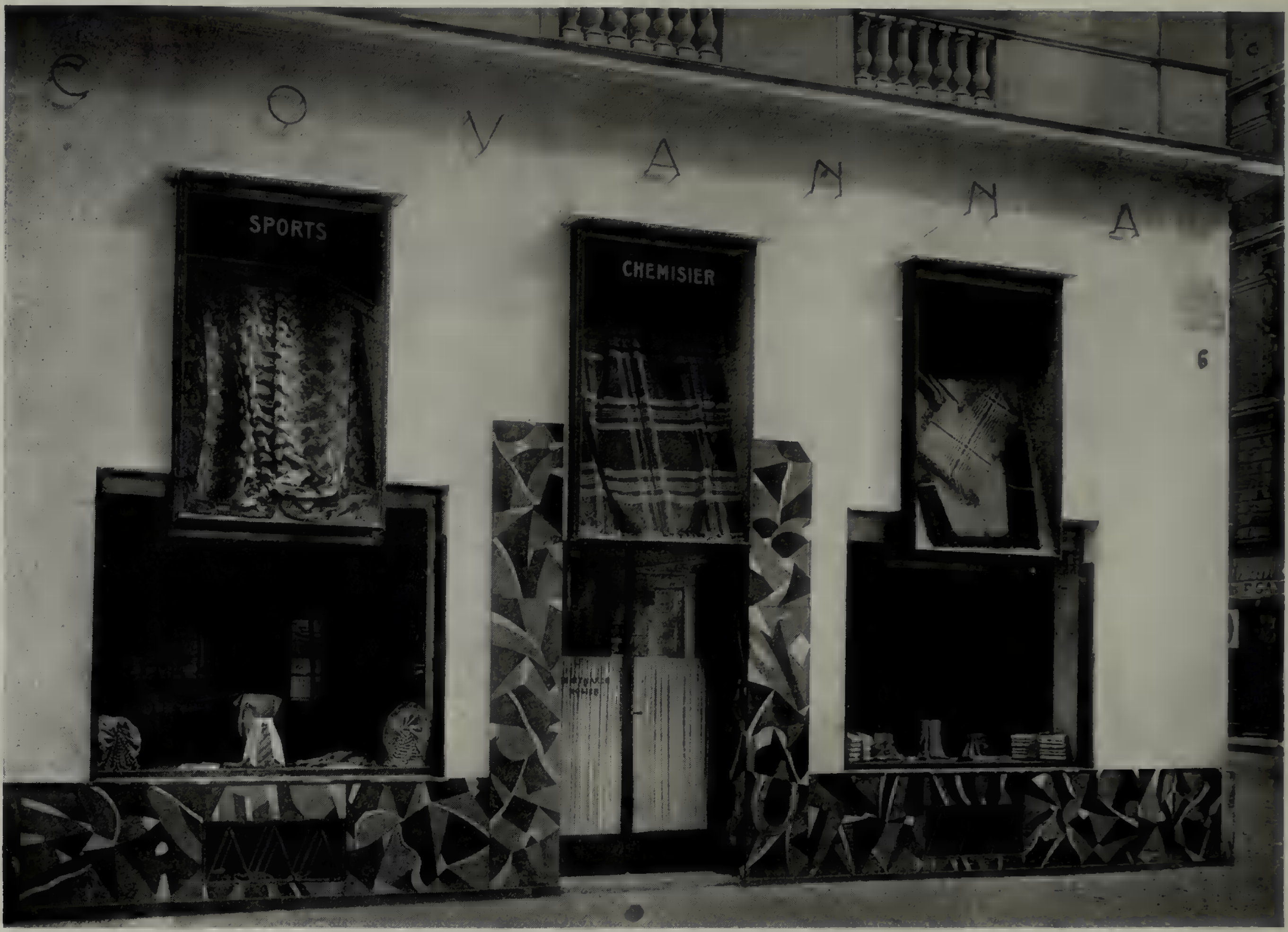


At Right: PHARMACY
CONSTANT SMEULDERS
SERVRANCKX, ARCHITECT

Editions Moreau

Below: WINDOW SIGN
VAHAN HAGOPIAN
ARCHITECT



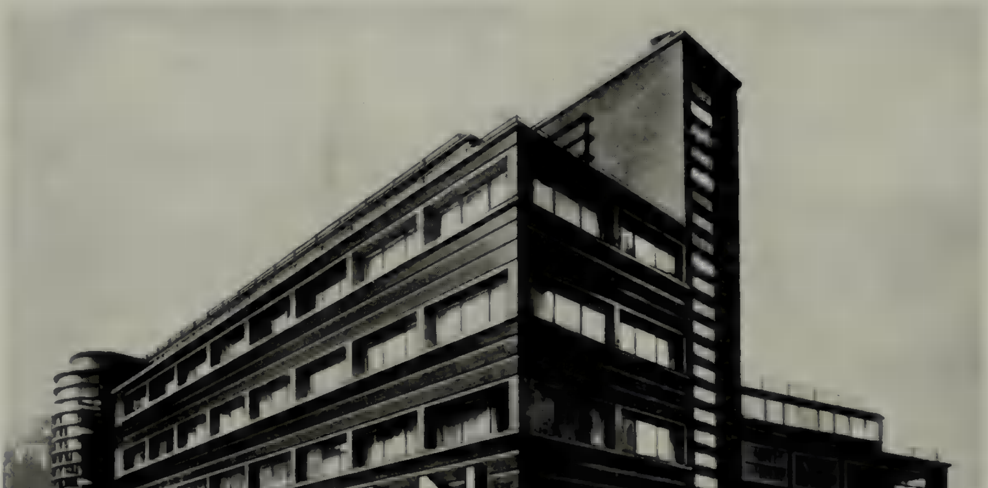


Courtesy C. Moreau

COVANNA SPORT CLOTHES

PATOUT, ARCHITECT

The lettering is delicate. The emphasis on the entrance



SCHOCKEN DEPARTMENT STORE, STUTTGART, GERMANY

ERICH MENDELSOHN, ARCHITECT

Note the glass tower at the further end. The lettering is an integral part of the architectural design

STANDARDIZING ARCHITECTURAL DRAFTING ROOM PRACTICE

BY THOMAS E. FRENCH

THE architect is an individualist, as rightly he should be, and his ideas done into brick and stone are the ultimate expression of his individuality. Authors, too, are individualists. Bernard Shaw and G. K. Chesterton each has a style of his own and the writings of one could not be mistaken for the other. But in writing, both Shaw and Chesterton follow the rules of English grammar and use the same alphabet, the same spelling, the same kind of punctuation marks, all standardized by the dictionary that both accept and with which their readers are familiar.

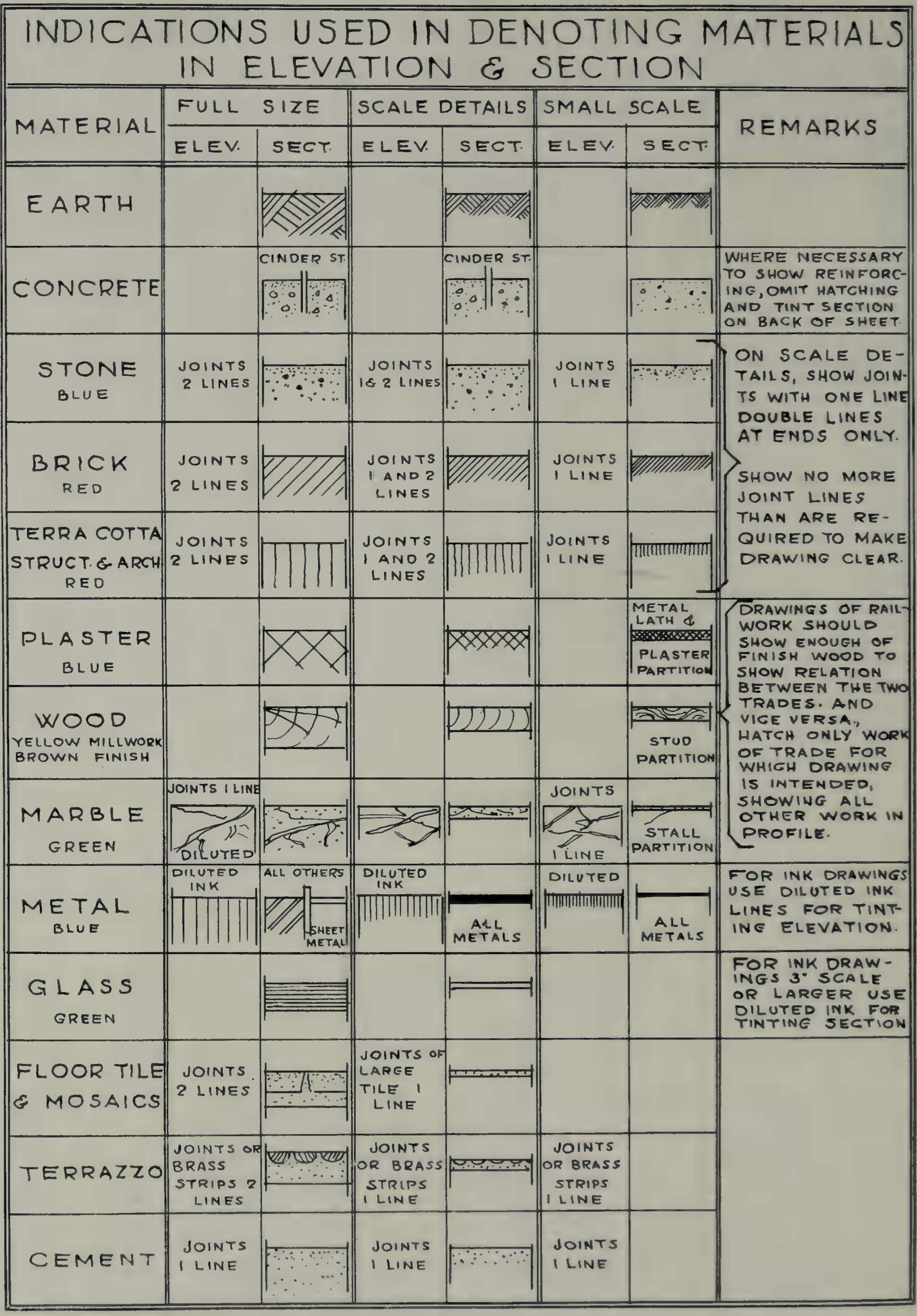
The architect in recording his ideas for his readers, the builders, uses a *graphic* language with an alphabet of lines instead of letters, his grammar the systems of projection, and his idioms the various symbols and conventions designed to represent different features and materials. Why then should there not be a standard dictionary of this graphic language, so that architectural draftsmen might all be able to speak it in the same way and be understood by their readers, instead of each having a dialect of his own? Does it not seem almost presumptuous for an office to say to a contractor, "If you wish to read our drawings you will have to learn our local language." Is there, for example, any more reason for there being a half-dozen different symbols for representing concrete in section than there would be for having six different ways of spelling the word concrete?

There is no doubt that the feeling of individuality tends to prevent the architect from being much interested in any apparent attempt to dictate his means of expression. He dislikes even the word "standardization". But it is a question whether a better uniformity in the "instruments of service" would in any way hamper his freedom or originality in design, while if a code of procedure adequate in its scope and economical in time could be adopted, it would certainly be of great advantage to both readers and writers of the thousands upon thousands of drawings produced yearly by the architectural profession.

In the interrelation of professions, other engineers, mechanical, civil, electrical, as well as contractors and material men, must read and work from architects' drawings, and architects very often have to read machine and structural drawings. The graphic language should be fluent enough and flexible enough that a writer in any one of these professions could express himself perfectly in it, and be understood easily by one in another profession.

There has already been a recognition in one case, of the advantage, really the necessity, for some accepted system of symbols in the interrelation of architectural drawings. The American Institute of Architects together with the American Institute of Electrical Engineers and the Association of Electragists, International, sponsored the project of the American Standards Association for the standardization of symbols for the electrical equipment of buildings, adopted as an American Standard in 1924. There is also being considered at the present time a tentative proposal for plumbing symbols.

While there may be on the part of the architect, as an individual, an aversion against anything connected with standardization, there is an appreciation of its value. He will, for instance, insist that if manufacturers wish him to preserve their advertising matter they must print it to a certain size and with certain kinds of title, in conformity with the A. I. A. Standard Filing System, even though he might resent any proposal that architectural drawings be made to certain specified sizes. In subjects other than those connected with drawing, the American Institute of Archi-



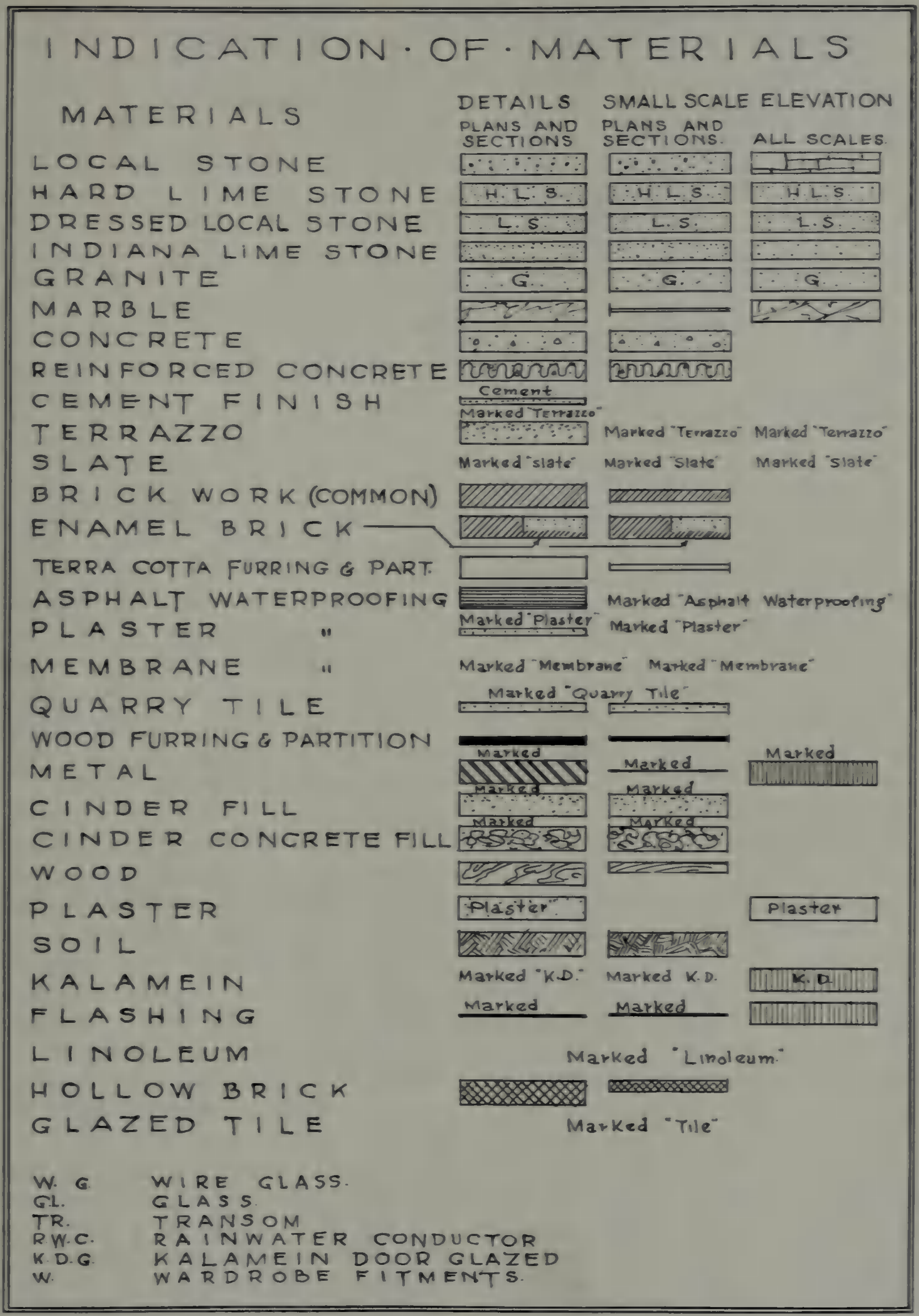
INDICATIONS USED IN DENOTING MATERIALS IN ELEVATION & SECTION

MATERIAL	FULL SIZE		SCALE DETAILS		SMALL SCALE		REMARKS
	ELEV.	SECT.	ELEV.	SECT.	ELEV.	SECT.	
EARTH							
CONCRETE		CINDER ST.		CINDER ST.			WHERE NECESSARY TO SHOW REINFORCING, OMIT HATCHING AND TINT SECTION ON BACK OF SHEET.
STONE BLUE	JOINTS 2 LINES		JOINTS 1& 2 LINES		JOINTS 1 LINE		ON SCALE DETAILS, SHOW JOINTS WITH ONE LINE DOUBLE LINES AT ENDS ONLY. SHOW NO MORE JOINT LINES THAN ARE REQUIRED TO MAKE DRAWING CLEAR.
BRICK RED	JOINTS 2 LINES		JOINTS 1 AND 2 LINES		JOINTS 1 LINE		
TERRA COTTA STRUCT. & ARCH RED	JOINTS 2 LINES		JOINTS 1 AND 2 LINES		JOINTS 1 LINE		
PLASTER BLUE						METAL LATH & PLASTER PARTITION	DRAWINGS OF RAILWORK SHOULD SHOW ENOUGH OF FINISH WOOD TO SHOW RELATION BETWEEN THE TWO TRADES. AND VICE VERSA, HATCH ONLY WORK OF TRADE FOR WHICH DRAWING IS INTENDED, SHOWING ALL OTHER WORK IN PROFILE.
WOOD YELLOW MILLWORK BROWN FINISH						STUD PARTITION	
MARBLE GREEN	JOINTS 1 LINE DILUTED				JOINTS 1 LINE	STALL PARTITION	
METAL BLUE	DILUTED INK	ALL OTHERS SHEET METAL	DILUTED INK	ALL METALS	DILUTED	ALL METALS	FOR INK DRAWINGS USE DILUTED INK LINES FOR TINTING ELEVATION.
GLASS GREEN							FOR INK DRAWINGS 3" SCALE OR LARGER USE DILUTED INK FOR TINTING SECTION
FLOOR TILE & MOSAICS	JOINTS 2 LINES		JOINTS OF LARGE TILE 1 LINE				
TERRAZZO	JOINTS OR BRASS STRIPS 2 LINES		JOINTS OR BRASS STRIPS 1 LINE		JOINTS OR BRASS STRIPS 1 LINE		
CEMENT	JOINTS 1 LINE		JOINTS 1 LINE		JOINTS 1 LINE		

FROM DRAFTING ROOM MANUAL

OFFICE OF HOOD, GODLEY AND FOUILHOUX, ARCHITECTS

The indication of materials is determined by personal selection irrespective of the practice in other offices



DRAFTING PRACTICE

OFFICE OF CHAS. Z. KLAUDER

Many of the indications on this page differ from those for the same materials on the opposite page

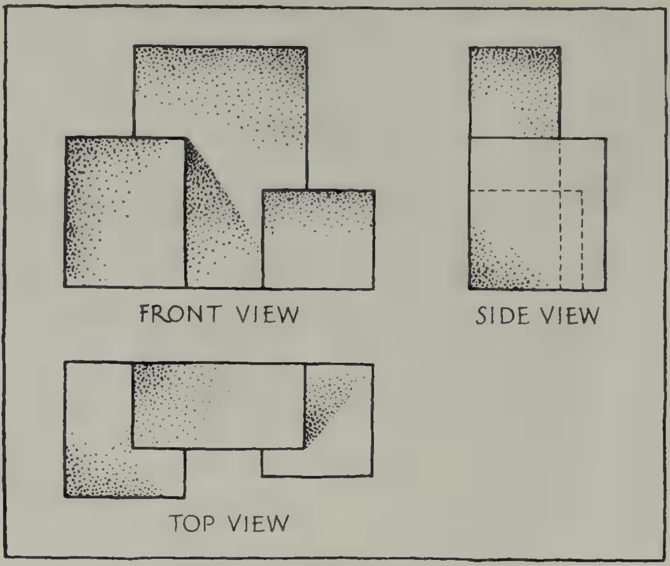


FIGURE I
FIRST ANGLE PROJECTION

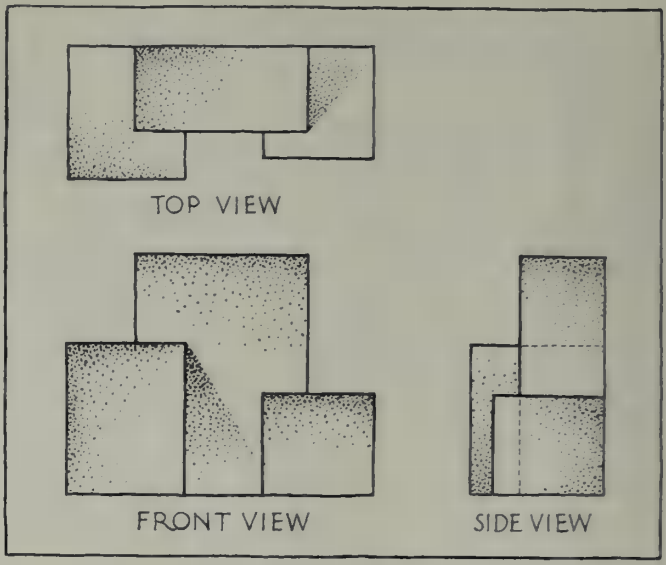


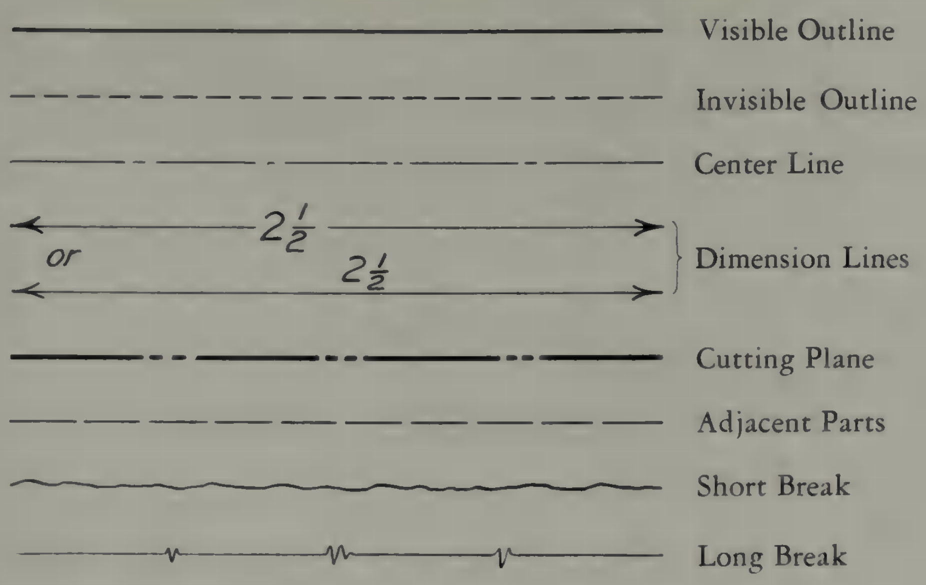
FIGURE 2
THIRD ANGLE PROJECTION

"There is occassionally a danger of error . . . An architect made the details of a rather expensive piece of cut-stone work in one system and the stone-cutter read the drawings as in the other system . . . The work was all finished reversed left for right"

tects is cooperating with the American Standards Association in no fewer than twenty different standardization projects, of such a variety as to include standard specifications for Portland cement; fire test methods; building exits code; safety codes for construction work, elevators, floor and wall openings, walkways, electric work and gas; identification of piping; lighting of school buildings; architectural terra cotta; brick masonry; refrigerators, etc., all of which will be of distinct advantage to the profession.

Several years ago the American Standards Association took up the question of standards for drawings. After some correspondence with the American Institute of Architects the title of the project was made "Standards for Drawings and Drafting Room Practice (Exclusive of Architectural Drawings)". The committee for this project, comprising representatives of some thirty national societies, with the U. S. War and Navy Departments and Bureau of Public Roads, is at present at work on a comprehensive study of the subject assigned, including not only methods of representation but sizes of drawings and filing cabinets, methods of folding and punching, specifications of materials for drawings, etc., etc. When this work is completed and formally adopted by the American Standards Association there will for the first time be an authoritative American Standard for the graphic language, to supersede the local codes and rules of practice now existing in the drafting rooms of the country.

It will be based on the conception that drawing is a universal language, with different vocabularies for the different professions, but having fundamental principles and methods common to all. No doubt one of the first principles to be officially adopted will be the system of third angle projection, or, as it is known in Europe, "American projection". This has been the almost exclusive practice in manufacturing concerns in this country for a good many years, but architects' drawings are frequently seen drawn in the first angle. Architects have on more than one occasion remarked to the writer that it made no difference to them whether a drawing was in first or third angle projection. As a matter of fact it not only makes considerable difference to the reader of the drawing but there is occasionally a danger of error. A local example comes to mind, in which the architect made the details of a rather expensive piece of cut



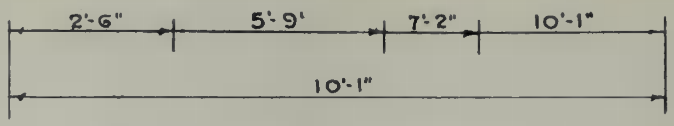
stone-work in one system and the stone cutter read the drawing as in the other system, with the result that the work was all finished reversed left for right.

The terms first and third angle (or quadrant) taken, as will be recalled, from descriptive geometry, refer of course, to the arrangement of views and not to the views themselves, and so do not apply to drawings with only one view on a sheet, but to drawings containing two or more projections of an object. Figure I illustrates a first angle projection and Figure II a third angle projection of the same object. This principle does not preclude the placing of a building plan under an elevation. A plan is really a horizontal section and as such can be put wherever convenient. A common application of this occurs in structural drawing practice as in the plan view of the lower member of a truss, placed under the elevation and read as a section above the flange looking down, not as a bottom view looking up.

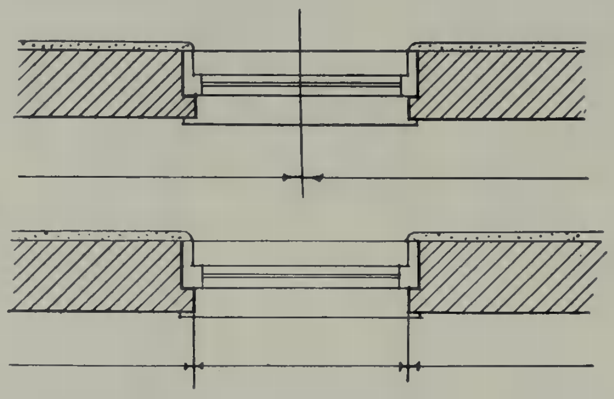
The lines to be proposed in the new standard are already in general use in machine drawing and, as far as they are applicable, have been used by perhaps the majority of architectural draftsmen. Other needed line symbols could be added for drawing, such as the ditto or repeat line, and lines for the "utilities", sewers, water, gas and electricity. The proposed rules for dimensioning also follow good current practice. The architect, of course, uses a lighter outline than does the machine draftsman and his drawings have an artistic effect entirely different from a set of machine drawings. In proposing uniformity of practice in line symbols and dimensioning, there would be no infringement of the architect's individuality in indication or presentation.

Another essential difference between architectural drawing and machine drawing is that in architectural drawing the necessary smallness of scale requires that the general drawings be made up largely of conventional symbols, as for walls and openings, while in machine drawing, where it is rare to use a scale smaller than quarter size, the machine is completely described by the lines in the drawing. Thus a standard to cover architectural drawing would have a vocabulary of symbols for different features occurring on the drawings.

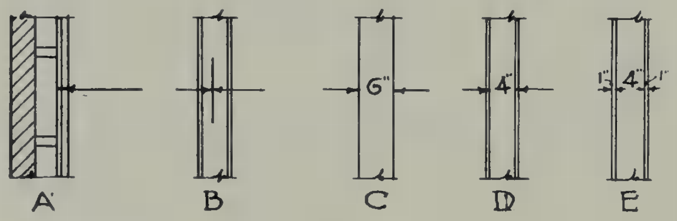
It is believed that the majority of men in the architectural profession will welcome the proposed standards for drafting room practice "exclusive of architectural drawings" and use the parts that apply to their work. It should be possible later to ask the American Standards Association, which, with the cooperation of its two hundred National societies, is the one body qualified to make a National Standard, to extend the scope of the present work so as to include architectural practice.

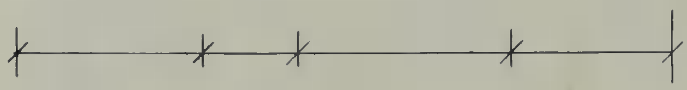


The cumulative method of indicating dimensions as shown above is misleading

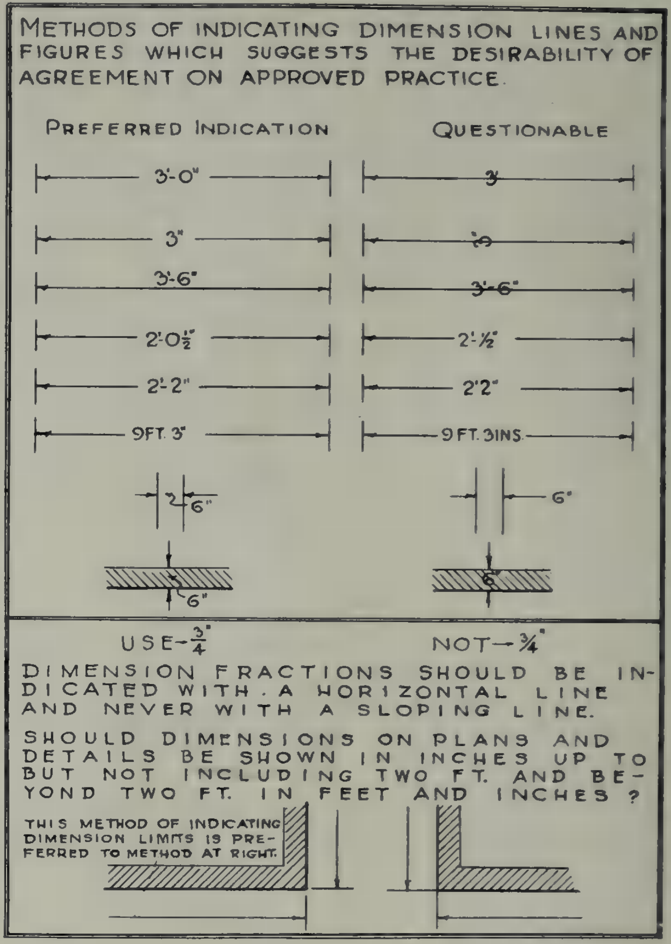


Should windows be dimensioned from center to center or from edges of openings?





A single sloping line is sometimes used as a substitute for arrow heads



METHODS OF INDICATING DIMENSION LINES AND FIGURES WHICH SUGGESTS THE DESIRABILITY OF AGREEMENT ON APPROVED PRACTICE.

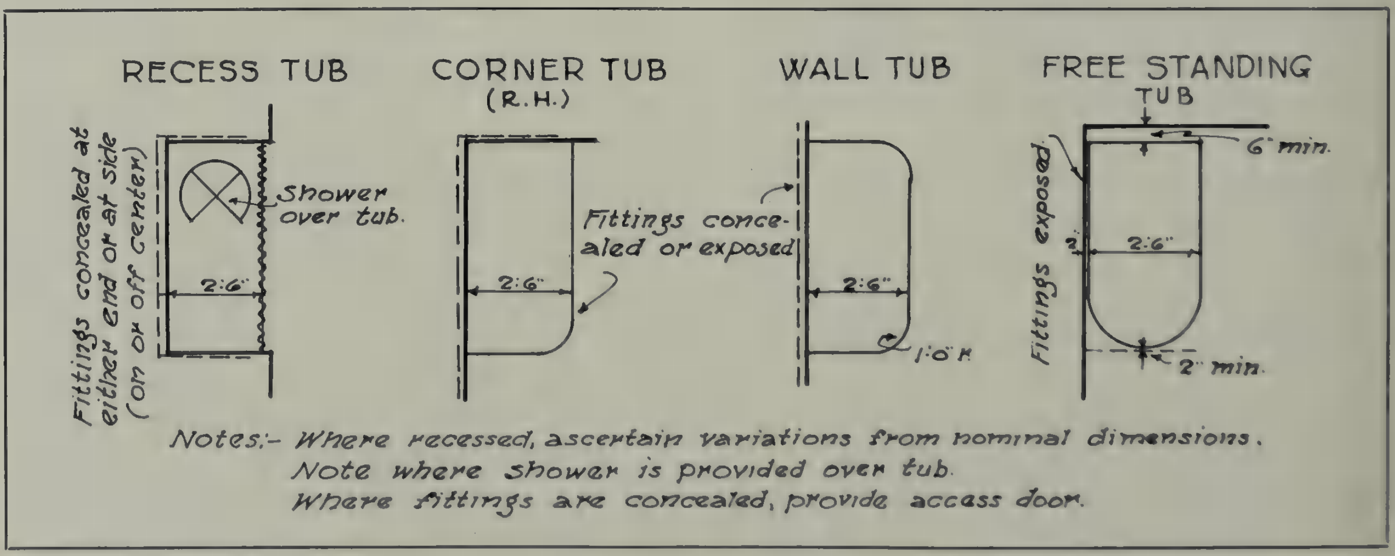
DIMENSION FRACTIONS SHOULD BE INDICATED WITH A HORIZONTAL LINE AND NEVER WITH A SLOPING LINE.

SHOULD DIMENSIONS ON PLANS AND DETAILS BE SHOWN IN INCHES UP TO BUT NOT INCLUDING TWO FT. AND BEYOND TWO FT. IN FEET AND INCHES ?

THIS METHOD OF INDICATING DIMENSION LIMITS IS PREFERRED TO METHOD AT RIGHT.

At Left: Should dimensions for inside partitions be indicated from inner face of outside studs and to center of inside partitions as in A and B? Some offices follow the practice of terminating dimensions at finished face of wall as in Example C. Other offices dimension to face of stud, brick or tile as in Example D

Below: The practice of one office (Hood, Godley and Fouilhoux) in indicating various types of tubs. Should there be a standard?



Notes:- Where recessed, ascertain variations from nominal dimensions.
Note where shower is provided over tub.
Where fittings are concealed, provide access door.

NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART IV

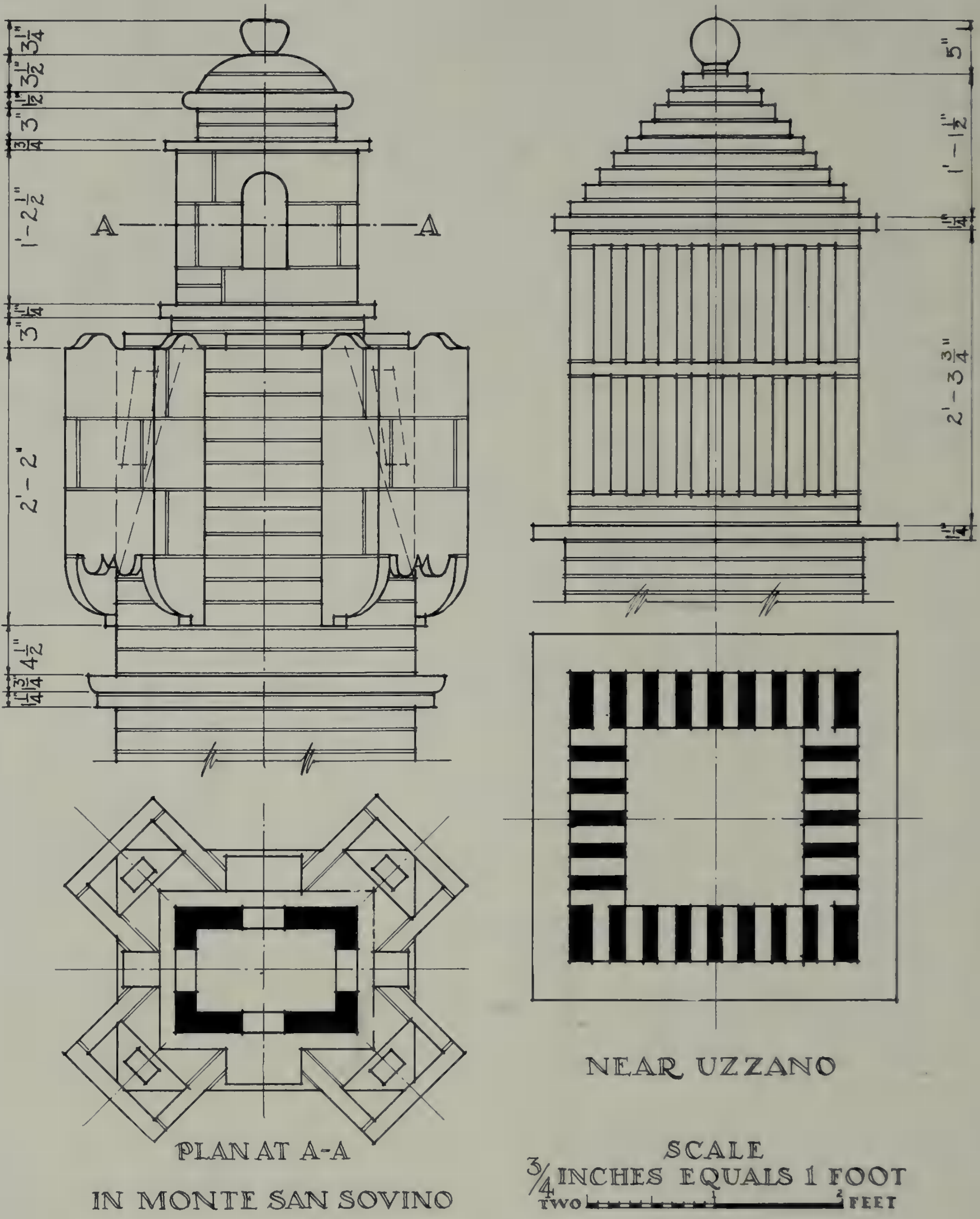
MONTE SAN SOVINO, the birthplace of the architect who made the village better known than did the saint for whom it was originally named, lies on the road from Arezzo to Siena. In this Tuscan hill town, within sight of the Chianti mountains, are hidden buildings and details by several better known Renaissance architects, including a palace by the great San Sovino the elder. It would be pleasant to assume that some of the unusual brick chimneys of Monte San Sovino were built from designs originated by these hands, but it is more likely that these chimneys were the work of native masons in the sixteenth or early seventeenth centuries.

Figures 50 and 51, drawn as plates VIII and IX, are from the same roof and were originally dressed in thin gesso save for the projecting courses which were left bare. Figure 52 is a later work obviously influenced by the preceding two. The one shown as figure 53 probably antedates the others by two centuries. Here the small scale corbeling is worked out in cut bricks.

Near Florence are found the two curious concoctions numbered figures 54 and 55. They are straight brick construction with no cut work or special mouldings. Pieces of curved roof tile and plenty of mortar form the cone-shaped finials. On the roof of a brick kiln nearby is the well-blackened example, figure 56 and part of plate VIII. Save for the terra cotta ball this is made up of stock brick with two courses of thinner flooring brick for the projecting courses. Figure 57 is a heavy Baroque chimney from the Pitti Palace in Florence. The *intonaco* which covered the exterior and which supplied much of the curve for the upper part is now flaking off. The Pitti originally was furnished with perhaps a hundred chimneys of slightly varying designs which must have presented a striking effect when viewed from the Boboli gardens. Unfortunately the officials in charge of this monument have seen fit to amputate most of these chimneys, substituting a few rectangular cement ventilators. Across the Piazza del Pitti, on the roof of a small palace, is the long multiple-flue chimney, figure 58, a clever construction of flat and curved roofing tiles and flat gutter tiles in the valleys. Figure 59 is a new chimney in thin brick from a farmhouse, well whitewashed, while figure 60 is an example from Florence, using cement mortar.

The little round chimney, figure 61, with its coat of fresh paint, is modest in comparison with the Roman pair, figure 62 and plate X. In these sixteenth century Baroque examples the brick is used only to form a base for the stucco which in turn is covered with bright yellow water paint. Also from Rome is the heavy construction of figure 63, here done in stucco over brick but equally effective if reproduced in form-cast concrete. The last chimney shown, figure 64, is a three-flue affair from Sesto, a village near Florence. The flat tile, bent slightly and used for the upper vents, is the ridge tile common in the province.

The one practical observation to be made after studying these unusual and interesting specimens of masonry is a word of warning to designers who would attempt a cold reproduction of some of these chimneys. Do not try to build with so-called face brick, or try to get along with one thickness of brick. Use common brick, the commoner the better. For the projecting mouldings use a thinner brick, preferably as thin as an inch and a half, keeping the mouldings as light and simple as possible.



PLAN AT A-A

IN MONTE SAN SOVINO

NEAR UZZANO

SCALE
3/4 INCHES EQUALS 1 FOOT
TWO 1 2 FEET

NORTH ITALIAN BRICK CHIMNIES
PLATE VIII · TUSCANY
MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

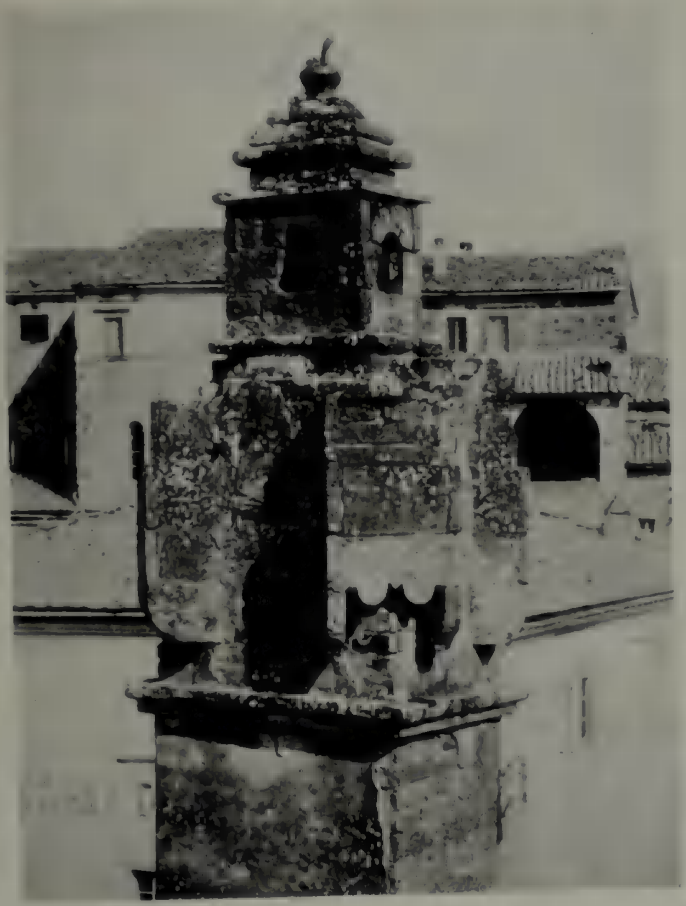


FIG. 50. MONTE SAN SOVINO

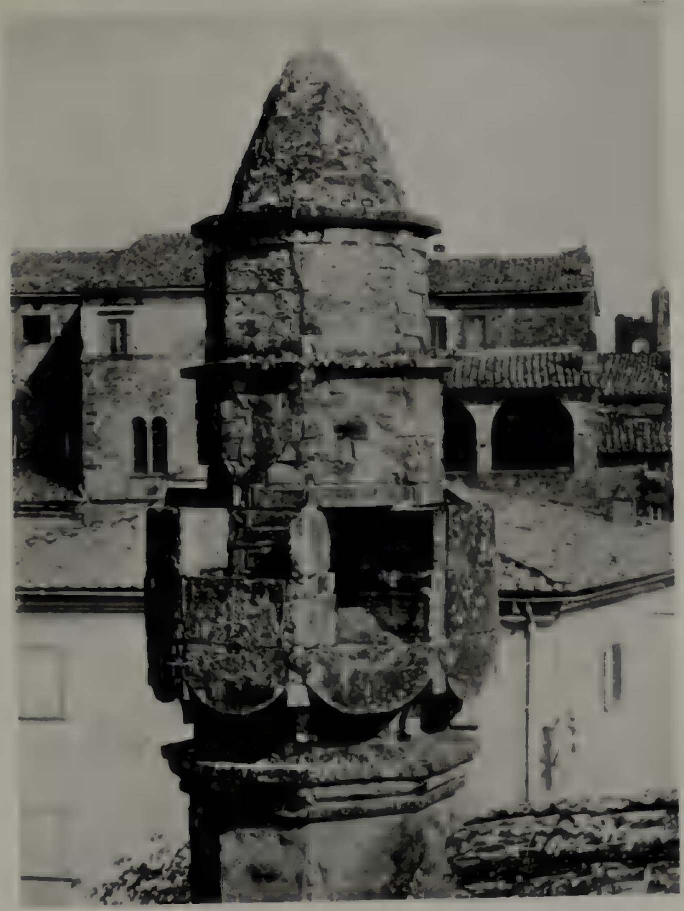


FIG. 51. MONTE SAN SOVINO

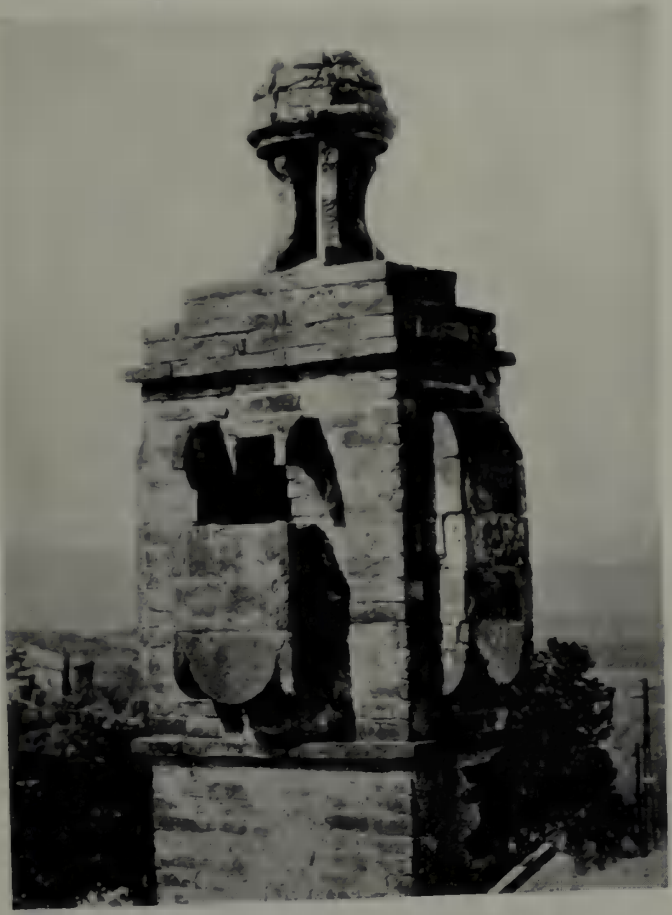


FIG. 52. MONTE SAN SOVINO

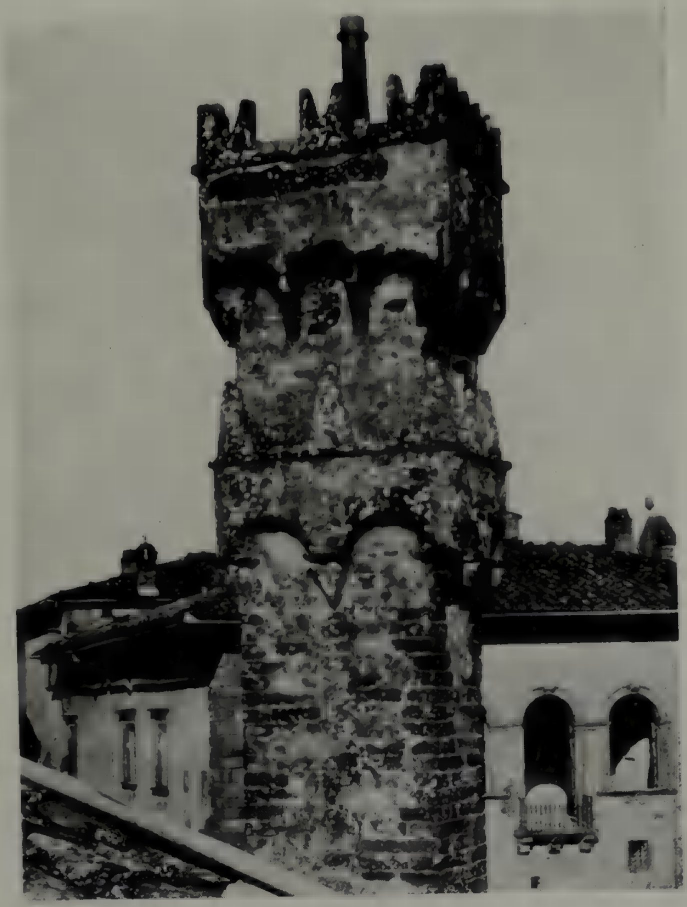
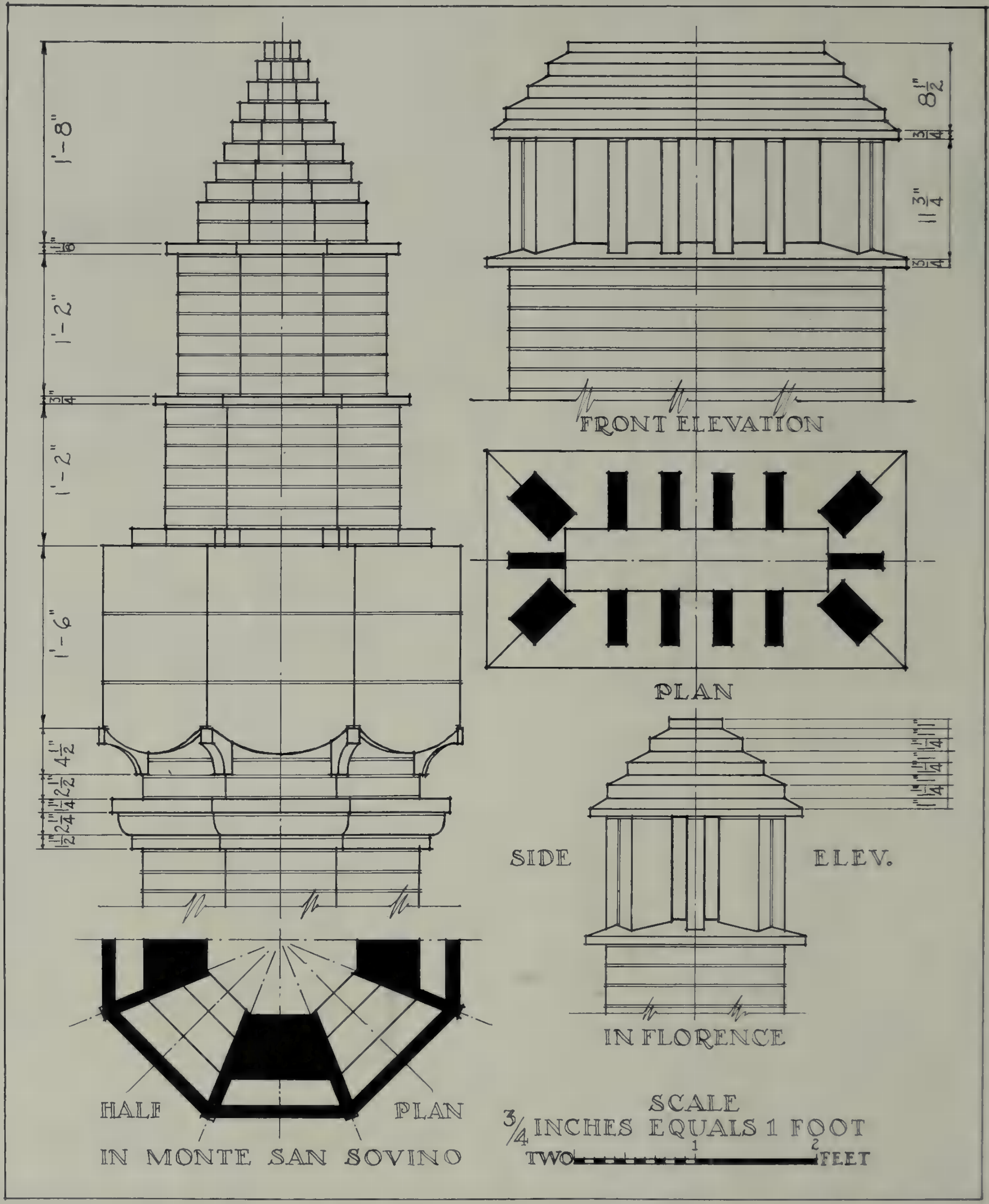


FIG. 53. MONTE SAN SOVINO



NORTH ITALIAN BRICK CHIMNIES

PLATE IX · TUSCANY

MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

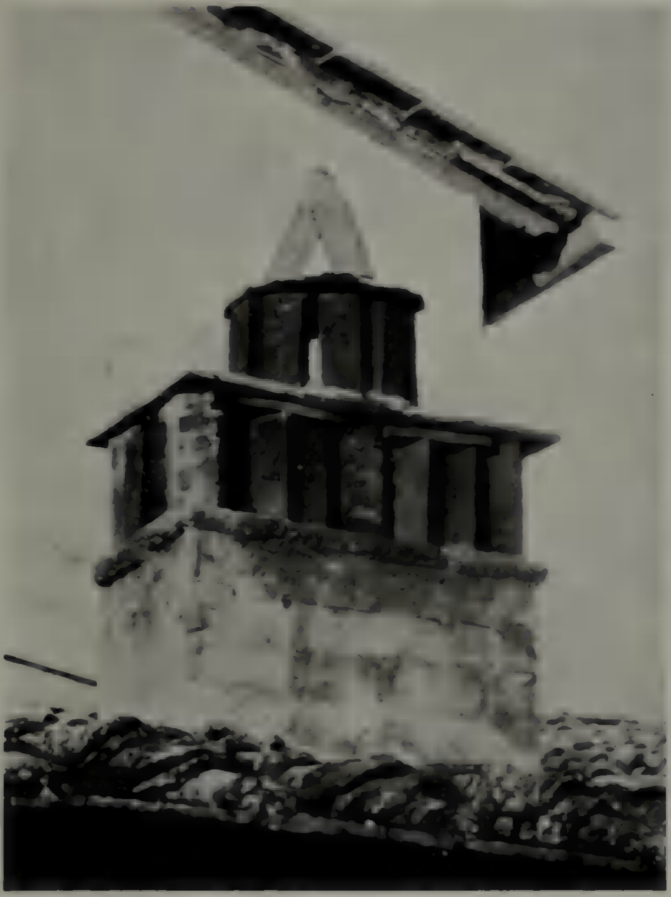


Fig. 54. GREVE, NEAR FLORENCE

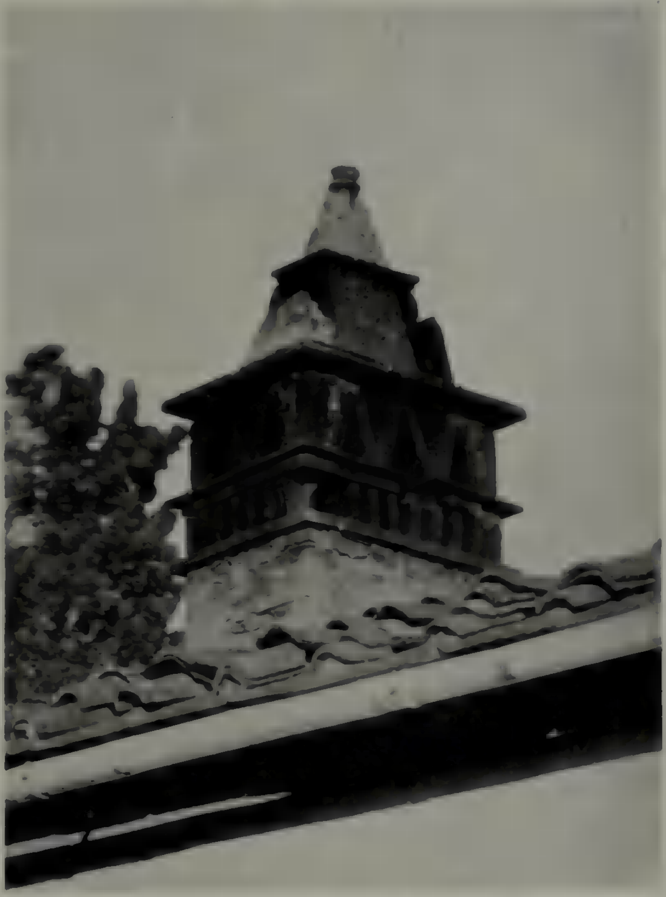


Fig. 55. GREVE, NEAR FLORENCE

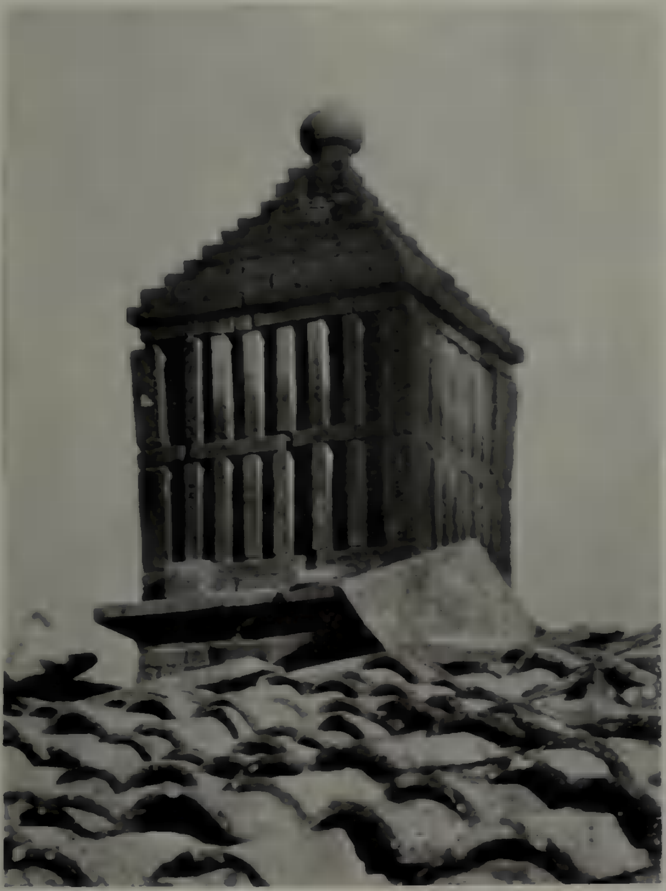


Fig. 56. NEAR FLORENCE

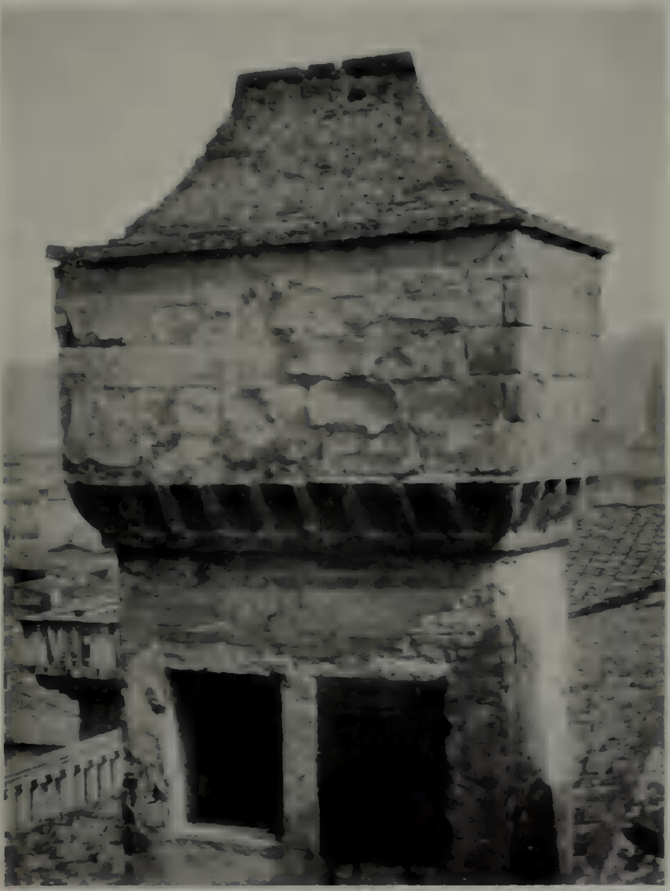
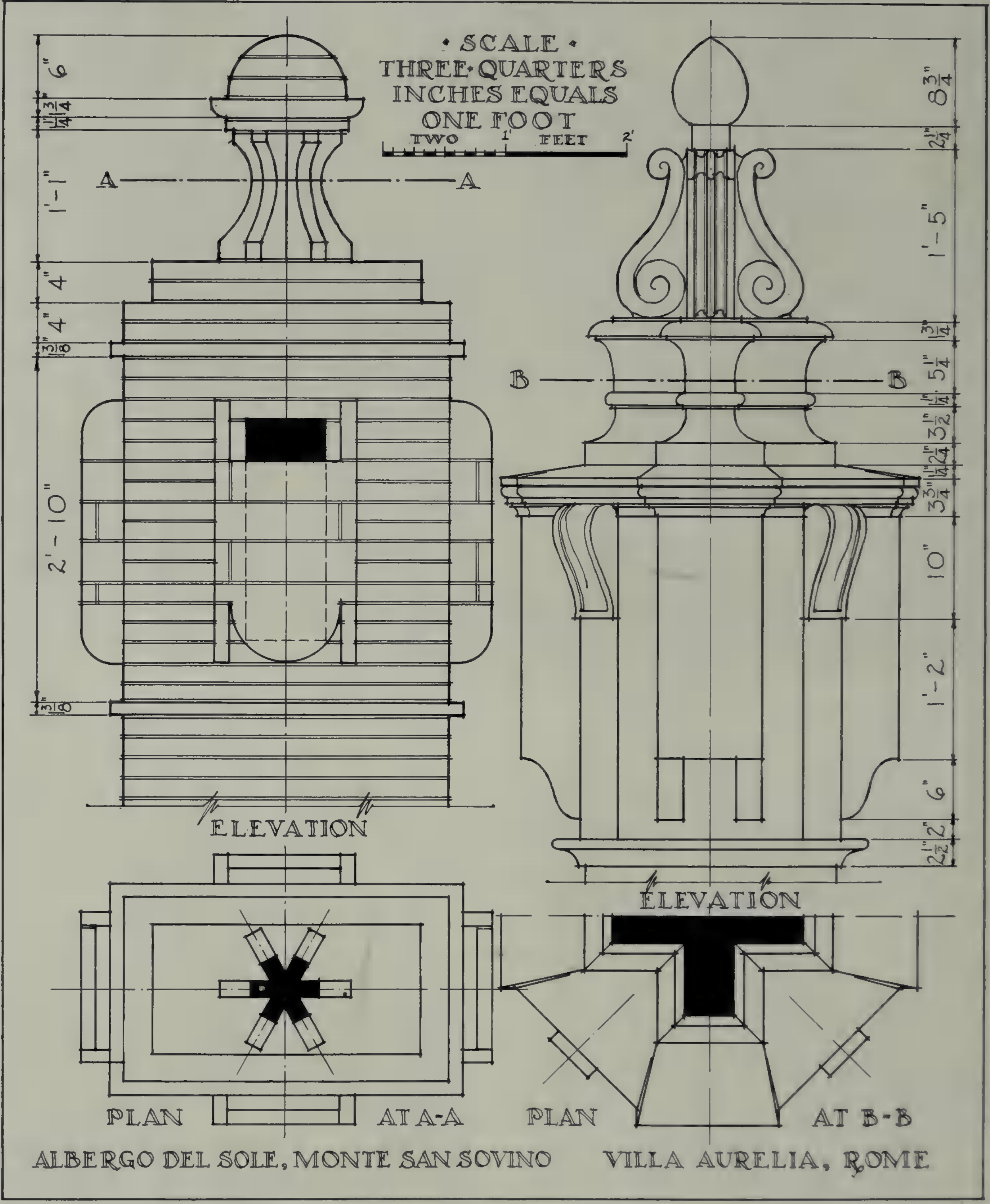


Fig. 57. PITTI PALACE, FLORENCE



NORTH ITALIAN BRICK CHIMNIES

PLATE X • TUSCANY AND ROME

MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

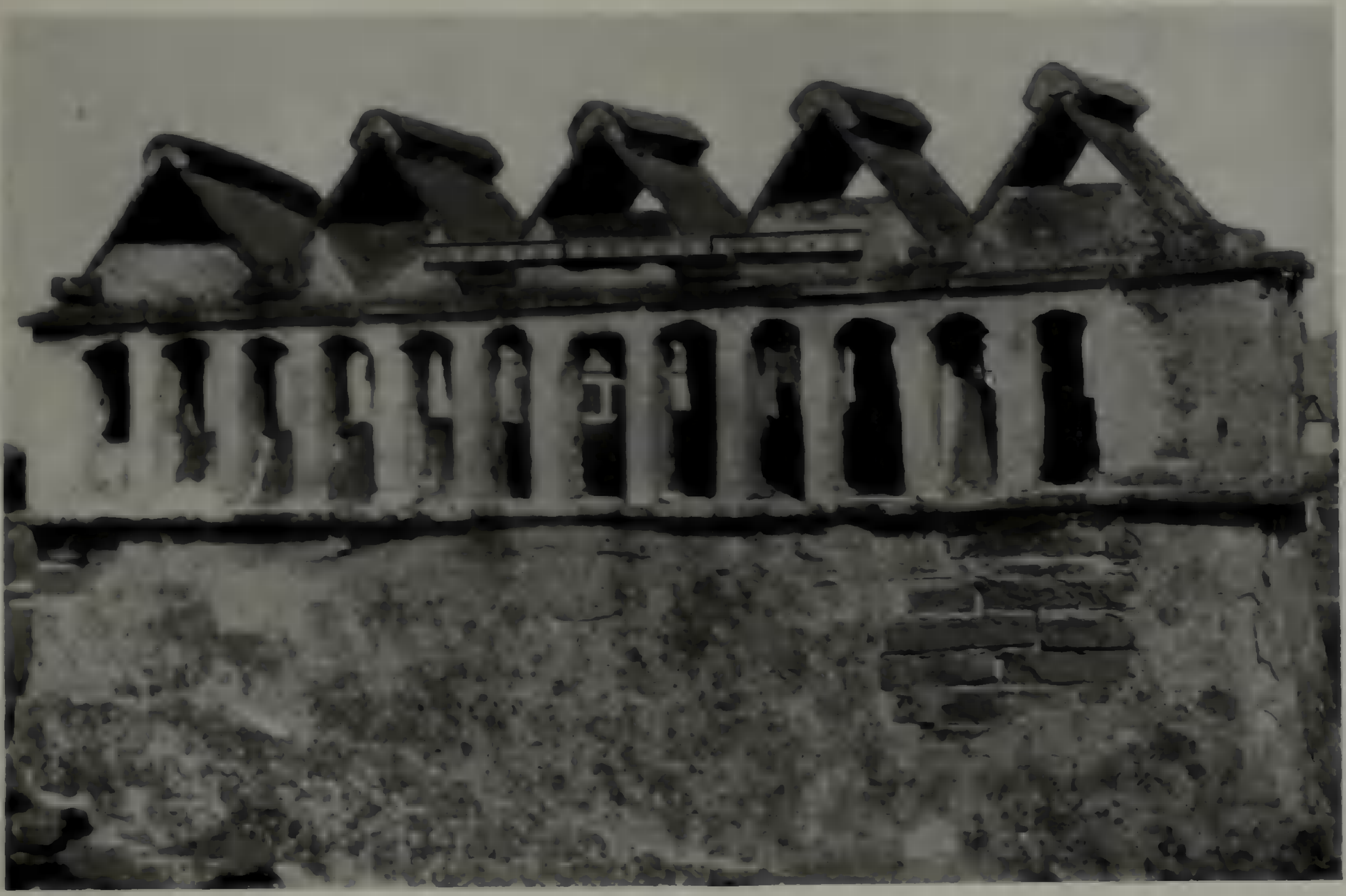


Fig. 58. PIAZZA DEL PITTI, FLORENCE

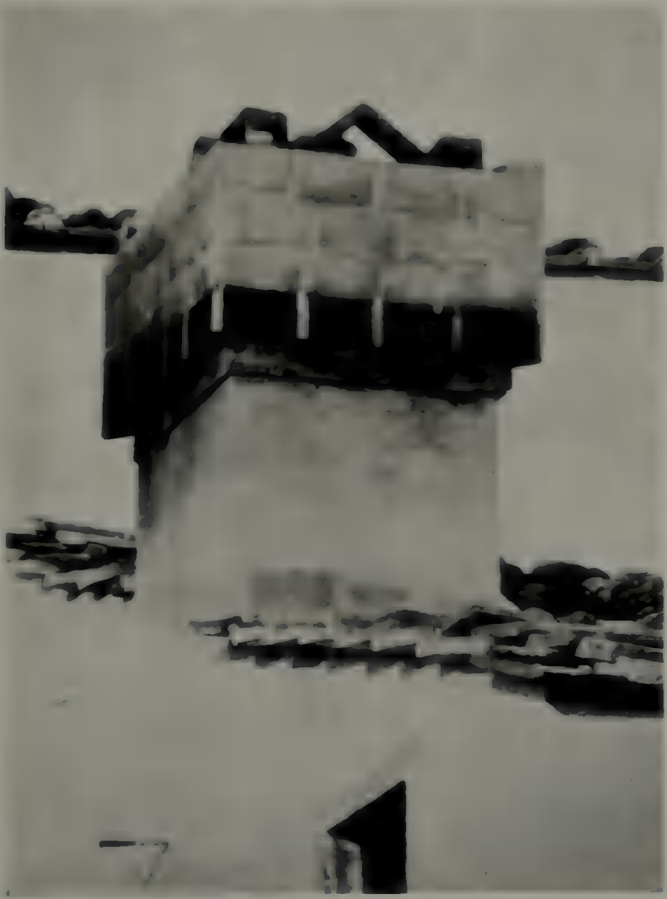


Fig. 59. NEAR FLORENCE

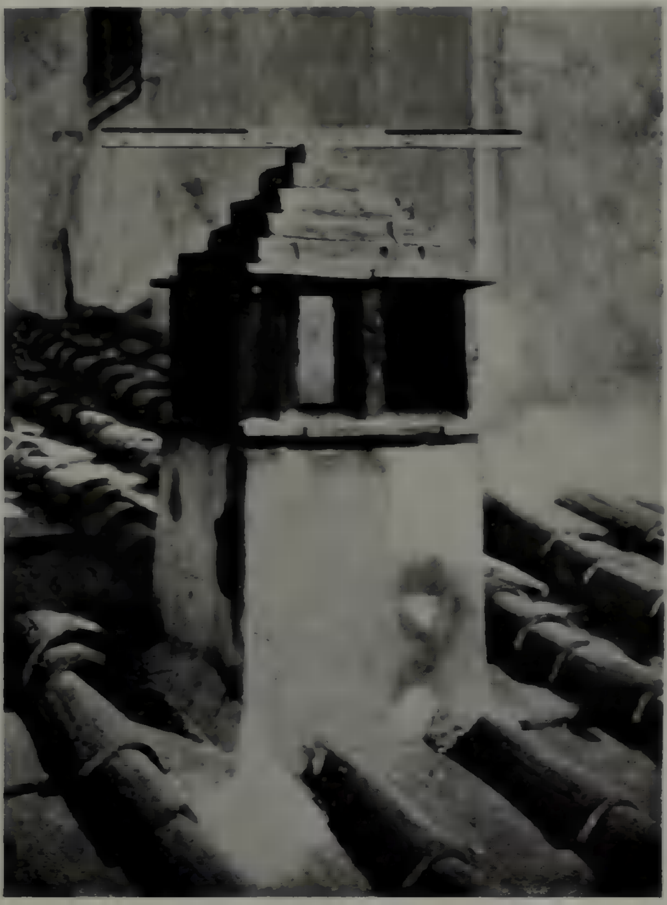


Fig. 60. PIAZZA SS. TRINITA, FLORENCE

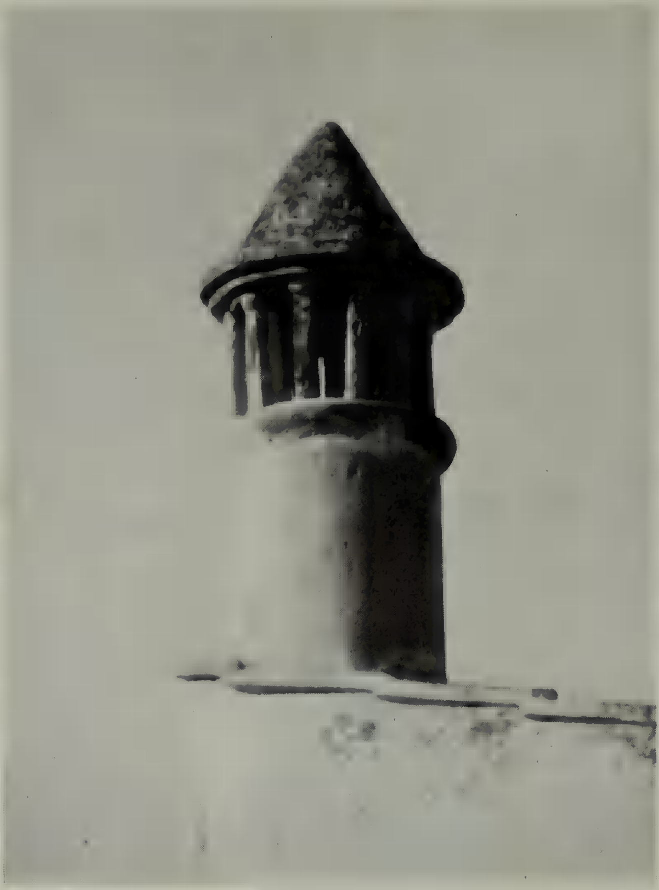


Fig. 61. FLORENCE

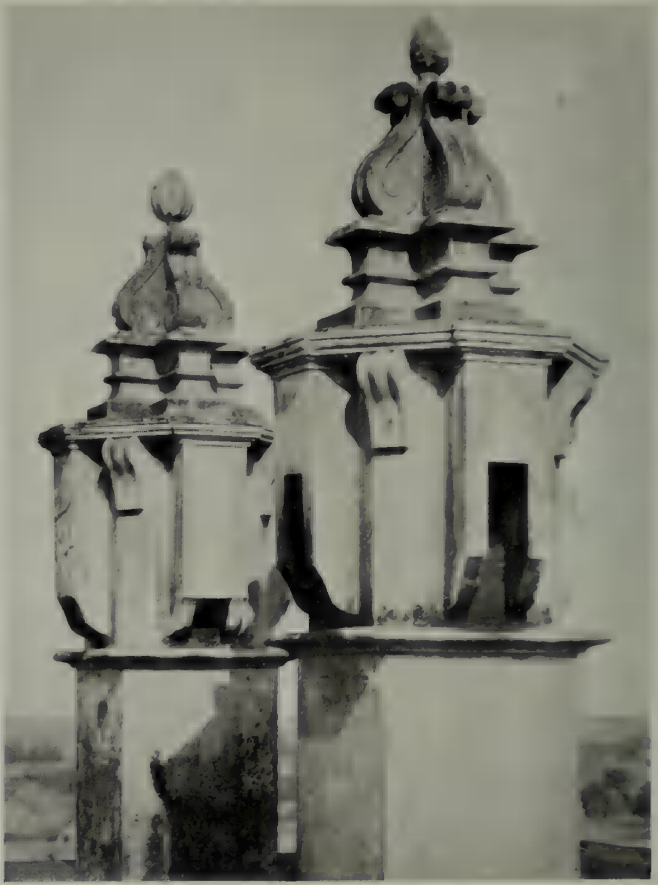


Fig. 62. VILLA AURELIA, ROME

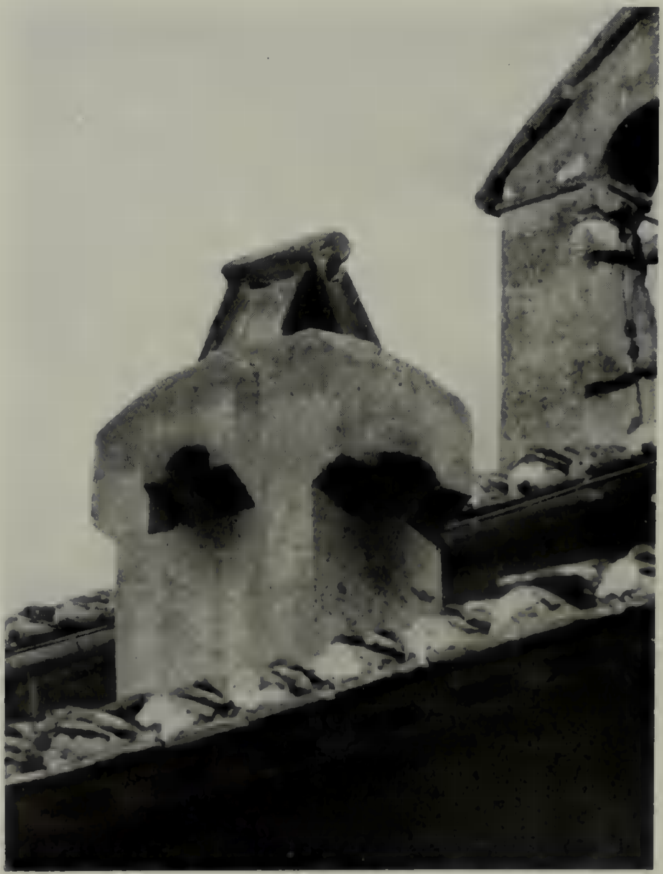


Fig. 63. DOMINE QUO VADIS, ROME

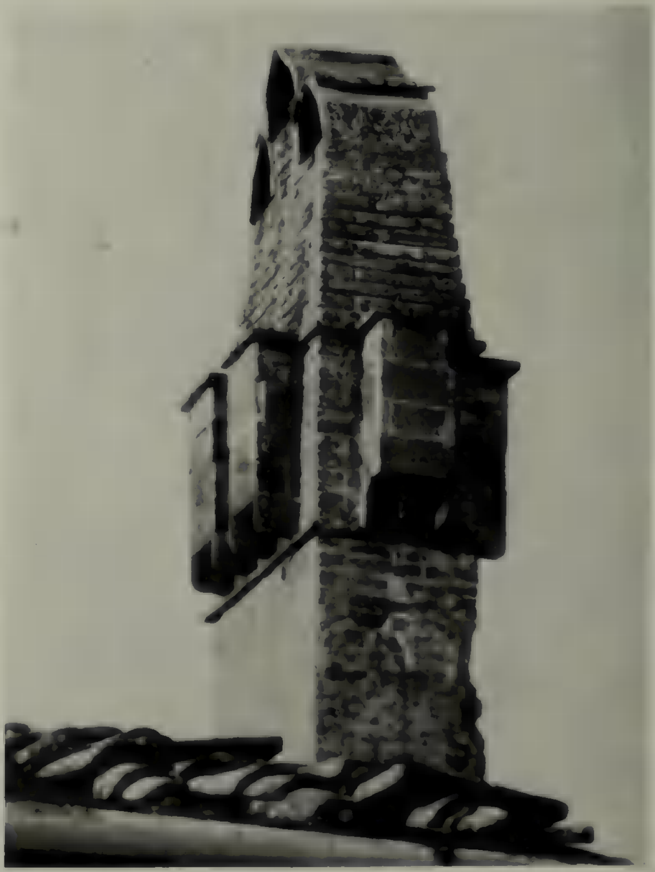


Fig. 64. SESTO, NEAR FLORENCE

THE BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT

What makes this one of the most interesting European constructions of the year is its extraordinary management of purely functional elements. One would call this a very "clean" piece of engineering, were it not more than that, a piece of vivid architecture.

•

STRUCTURE AND MATERIALS

As the illustrations show, with very little need of further explanation, the architect and his engineer exploited the possibilities of reinforced concrete. It is used in thin sections, ingeniously cantilevered.*

The pebbled texture of all concrete surfaces was obtained by painting the forms with *Contex*, a thick fluid which prevents the cement from binding, to a depth of 3 mm. (about ⅛"). After the concrete had set, it was brushed. This kind of surface it is claimed cuts the cost of maintenance and cleaning.

The walls of the house (a remodelled *chalet*) were covered with hydraulic lime mortar and painted a brilliant white.

•

PLAN

The three focal points of the plan were the approach, the house with tea-room and dance hall, and the strand. Due to the gentle slope of the land, separate ascending levels are occupied by the beach, the playgrounds, and the tennis court, while the tea room and dance hall building with its terrace dominates the site.

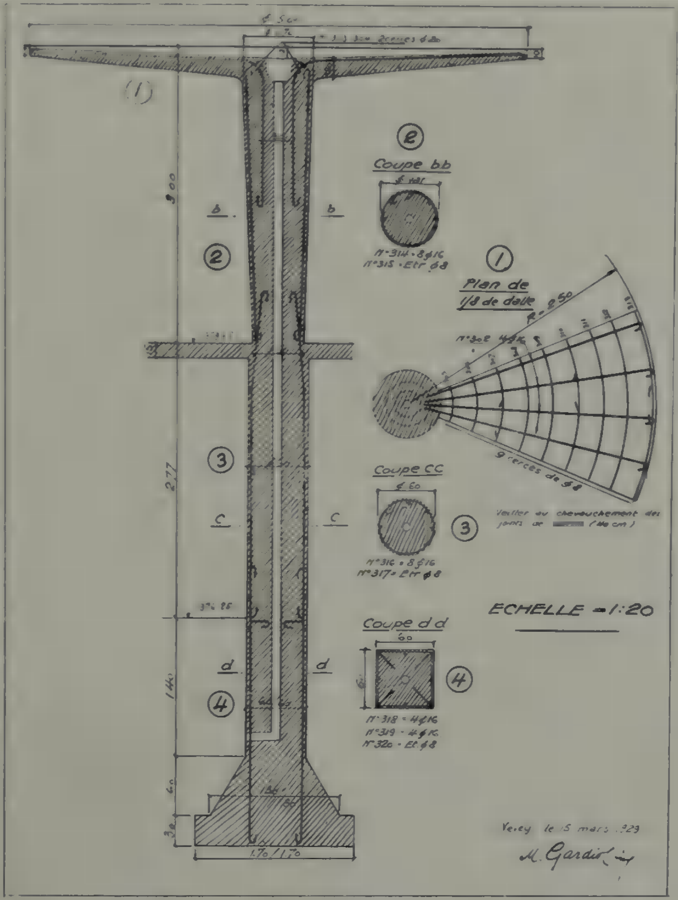
•

COLOR

All colors are designed to play into the natural gray of the concrete and the pure white of the dominating building walls. The porch of the tea room is painted black; the facades of the cashier's building and the laundry are a fiery red. The doors of the dressing rooms directly opposite the lake are blue with a horizontal stripe at the threshold of luminous red. The shields carrying the numbers are a sharp yellow, on the blue ground. On the grass to the right of the house, under the deep green of the park trees, are two other groups of cabins: one with yellow doors and blue stripes, the other with red doors and yellow stripes.

The interior walls and the ceiling of the tea room are plastered and painted with yellow lacquer (*emaillack*). The circles of light (see page 167) are of neon tubes, the colors changeable at the wish of the dancing master.

The floors are in several colors of extra-strong linoleum.



SECTION OF CONCRETE SHADE AT VEVEY
OTTO ZOLLINGER, ARCHITECT
(See photograph on page 164)

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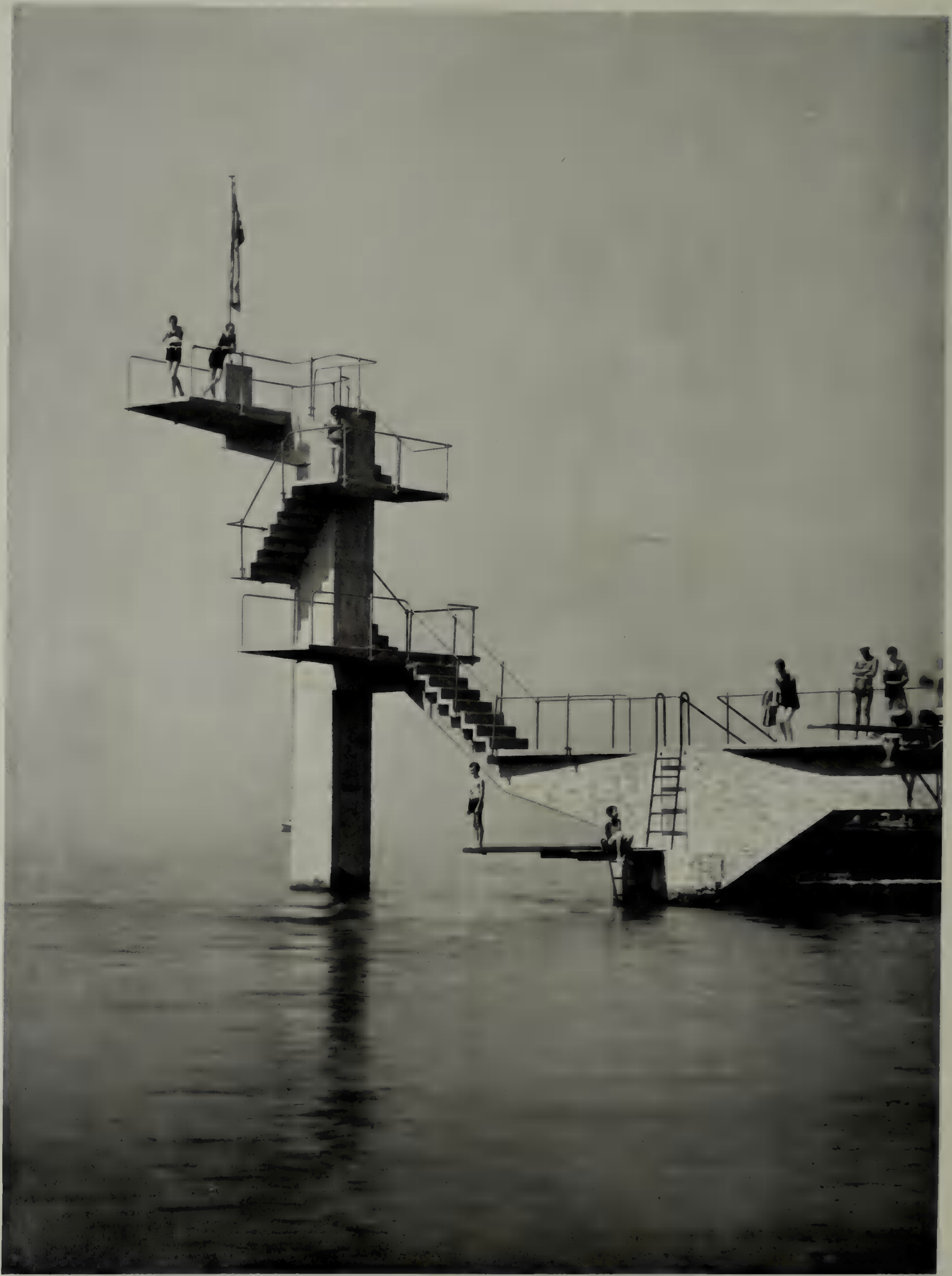
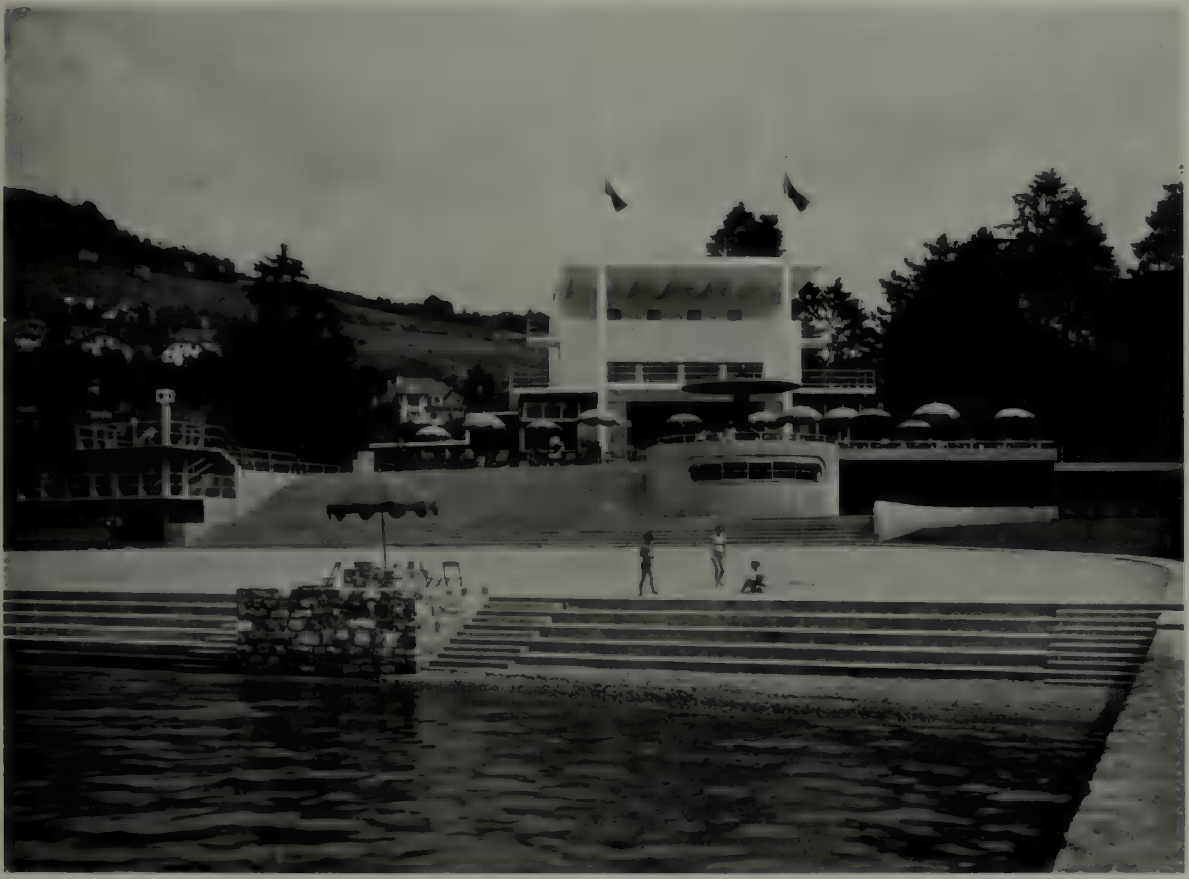
* The calculations for the diving tower are on file at the office of THE RECORD, and copies will be forwarded to those requesting them.



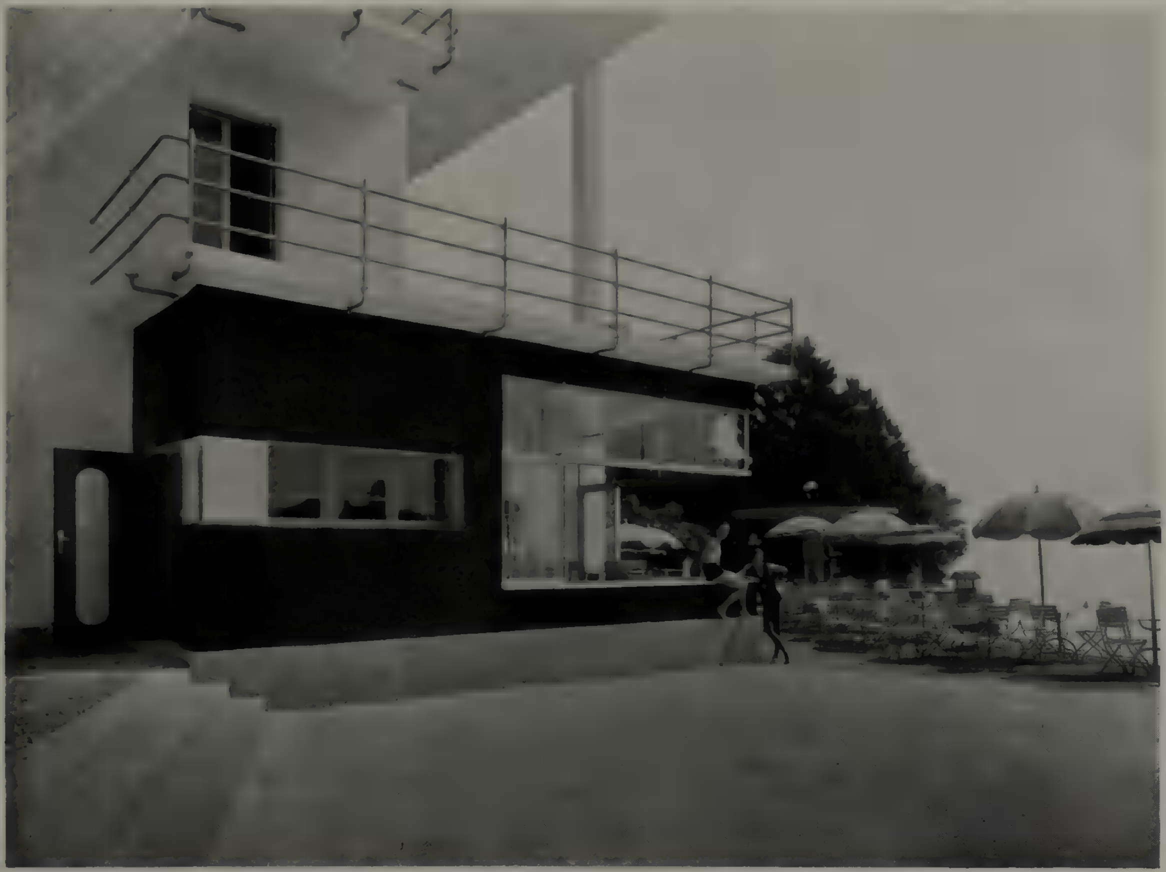
DIVING TOWER

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT



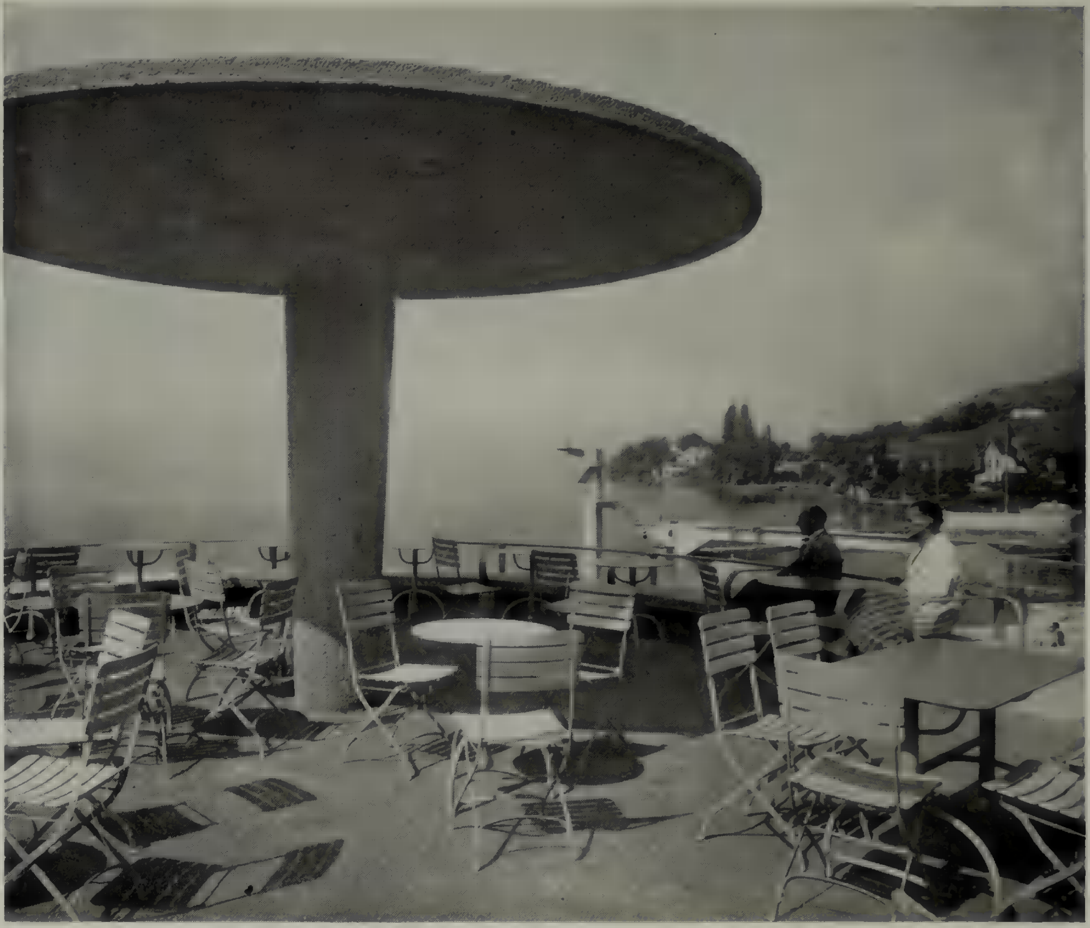
NOTE THE CONCRETE SHADE; UNDER THE TERRACE ARE DRESSING ROOMS



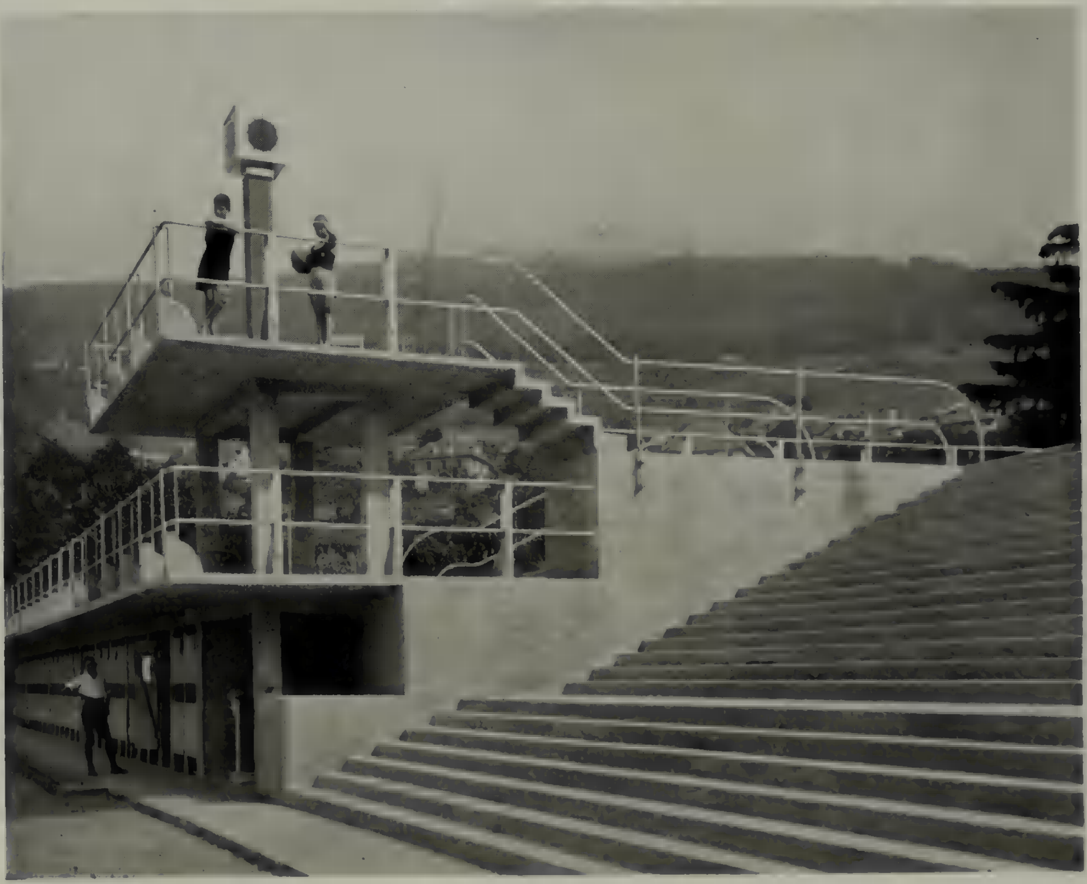
PORCH OF THE TEA ROOM

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT



CONCRETE SHADE ON TERRACE



CLOCK AND DRESSING ROOMS

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT

A LETTER TO THE RECORD

PATRONS OR CLIENTS?

The following is a reply to the editorial in the December RECORD, *called "Patrons of Architecture."*

Today I am riding between Chicago, Illinois, and Spring Green, Wisconsin. Chicago, like New York City, is well known to all architects because of its rapidly changing sky line due to the development of the skyscraper, believed by many to be America's contribution to architecture. Well, the height is, but the facade in most instances is merely an adaptation. And Spring Green is known to only a few as the village wherein lies Frank Lloyd Wright's Taliesin, the home—"that does not suggest that the architect is his own best patron." How little Mr. Hitchcock understands!

Between these two geographical points I pass through many villages and towns, and I see and grow tired of seeing houses and buildings that, to Mr. Hitchcock, must have been created by and express "the general public taste, knowledge and appreciation." For he claims that architecture, "to an extraordinary extent," is dependent upon that.

But not until tonight when I arrive at Spring Green and journey four miles into the country will I see a true example of good architecture since I left Unity Temple this morning. Taliesin grows from the ground in such perfect harmony with its surroundings that one feels as though a greater hand than man's had placed it there. Not so with these houses I see along the right-of-way.

Architecture is like medicine as a profession. Is it necessary for a physician to have a patron of medicine for a client? A man who will select an architect for the purpose of designing a building for him knowing all the while that he considers himself, or is considered by others as a patron of architecture, is nothing more than a liability to the architectural profession.

Working drawings are a mere gesture when compared with the actual designs of a building. After having conceived the designs for a building it is only a secondary step to make working drawings. So that if one of these so-called patrons of architecture knew what he wanted he could act as his own architect having an efficient draftsman produce working drawings from sketches provided. They do not, however; they prefer to employ an architect.

Laymen take a certain pride in saying that, "My house was designed by ———." But I think it would be more proper to say, "——— made the drawings for my house—I told him what to draw."

That is nearer the truth; and the architect, in order to hold the commission, submitted to the fancies of his client. That is, I think, what Mr. Hitchcock considers a patron of architecture—one who takes an active but destructive part in the designing of his building.

A man who can honestly be called an architect should be permitted to give a client what he thinks is the best solution to his immediate problem, all of the while keeping within the client's limits. The client should have the faith in his architectural choice to accept the solution without trying to alter it aesthetically.

When that perfect harmony between architect and client is reached, architecture will be what I expect it to be. Until then we will have what I see from the train window as we travel on.

There is no need of debasing architecture to the point where the voice of the people is the final word in architectural design. And if that is the general feeling, why continue to teach architecture?

The world would come to be a most livable place if all architects could be classed as architects and all clients as clients.

GEORGE EDWARD CRONIN,
Taliesin

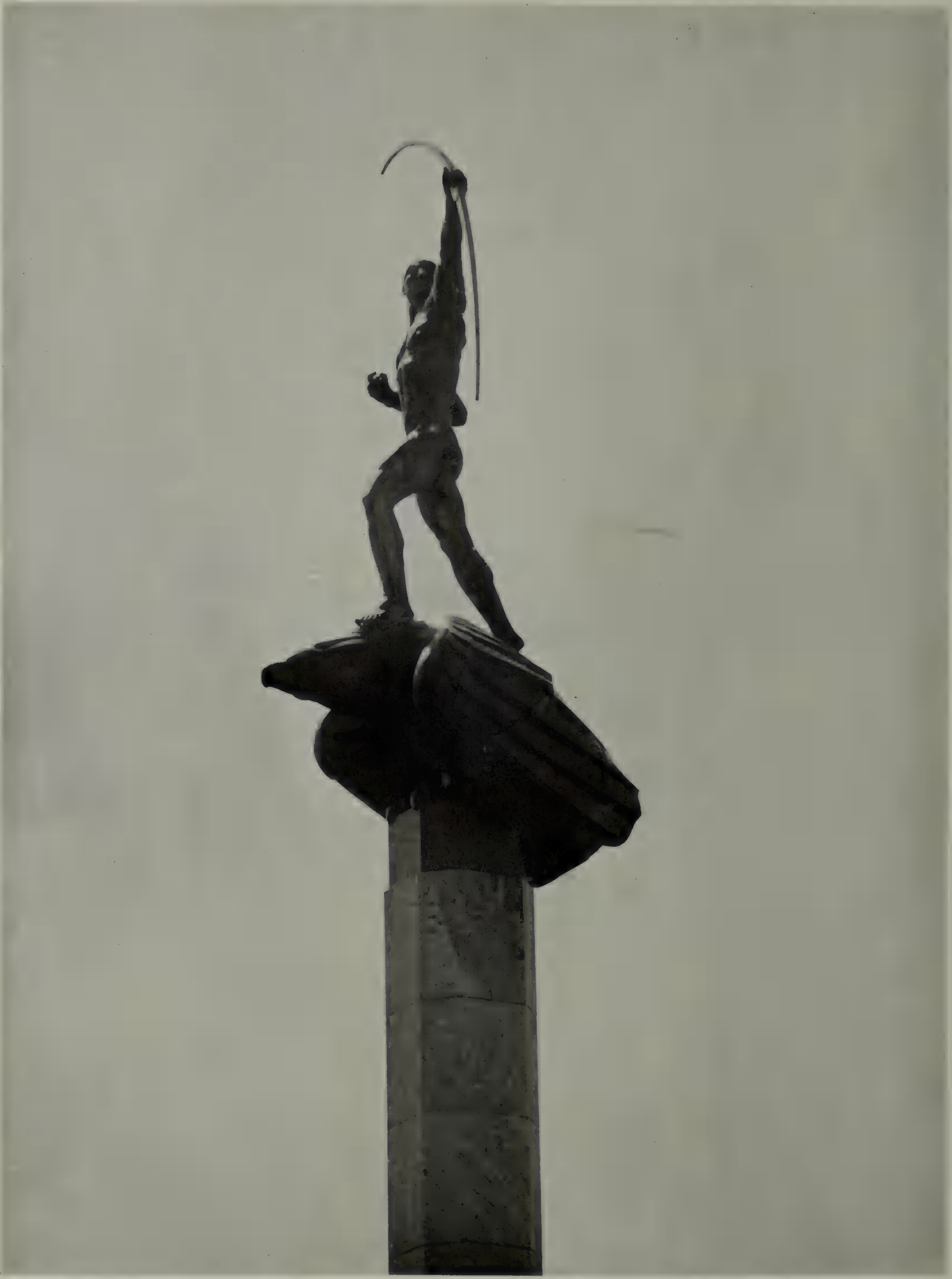


Photo. McLaughlin

MONUMENT TO THE ARCHER

CARL MILLES, SCULPTOR

The man is bronze with bow gilded; the eagle is black granite; the column is veined and polished granite

THE CRAFTS IN MODERN SWEDISH ARCHITECTURE

BY ROBERT W. McLAUGHLIN, JR.

THE many buildings in Stockholm which are built of the granite on which the City stands can hardly fail to belong to their environment. The Swedes know how to mellow the harshness of this material without destroying the character of its strength. The capitals and columns of the southern arcade of Mr. Ostberg's City Hall are granite from the west coast of Sweden, pinkish in tone, thus blending with the warm red brickwork. The effect of the stone here in relation to the brick is not one of trim; it is of another noble material used in a minor and sympathetic way. The soft quality of finish is obtained by a process of sand blowing, known as "osmund blasting", with some portions of the sculpture polished and brought to a honed finish.

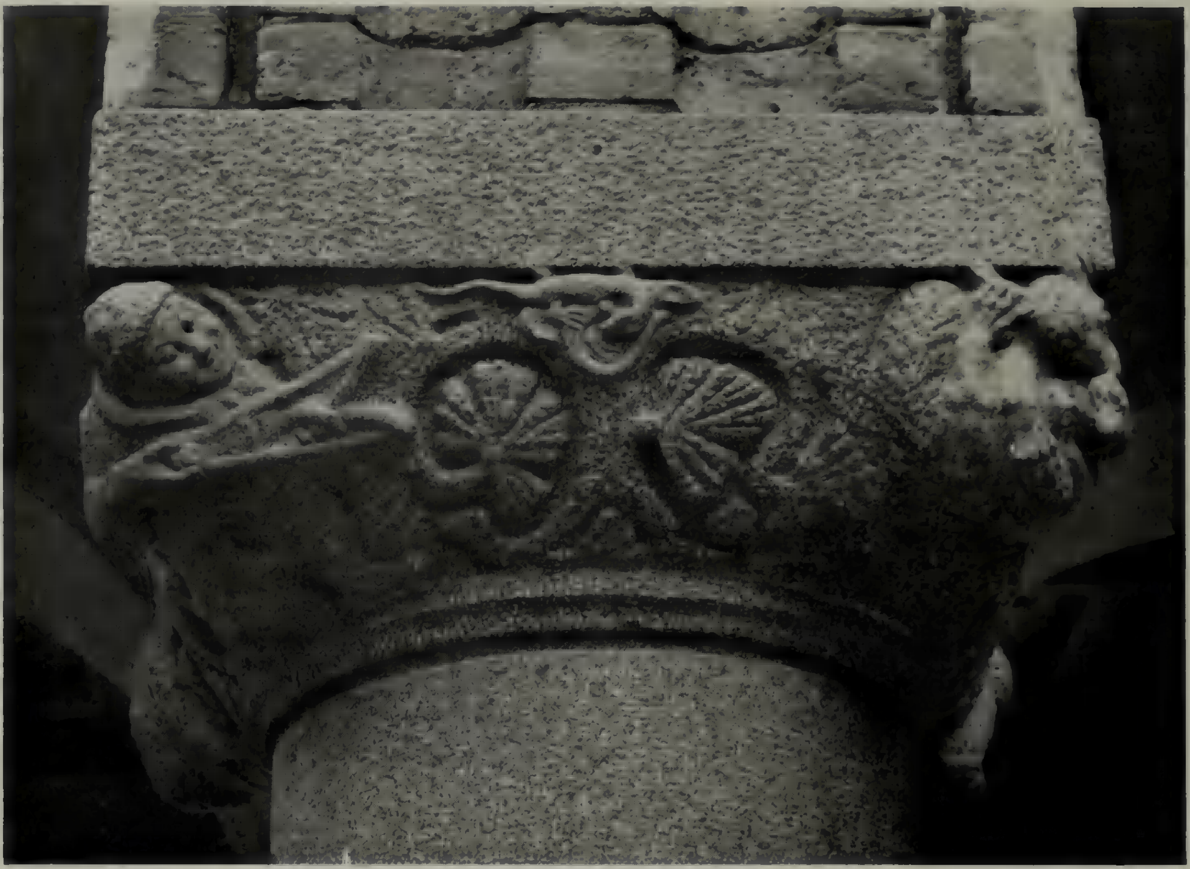
The possibilities of black granite are masterfully worked out by Carl Milles. Professor Milles, who is a sculptor and ranked as Scandinavia's greatest, has a rare architectonic sense. His monument to the archer is a splendid medley of materials. The man is bronze with bow gilded; the eagle is black granite; and the column veined, polished granite. The eagle happened to be in Professor Milles' studio having been taken down for repairs while the writer was in Stockholm. The sheer tactile delight, as one's eyes or one's hands followed the consummately worked granite surface could be produced only by a supreme artistry in materials. This capacity for creating the utmost of artistic form out of the content of material is present to some degree in most of Swedish architecture.

The ceiling of the City Hall arcade is a splendid example of out of door decoration. It is oak of a soft warm-gray tone, with mythological figures in the panels. These figures by Axel Wallert are drawn and slightly modelled in black and a fine tone of indigo blue.

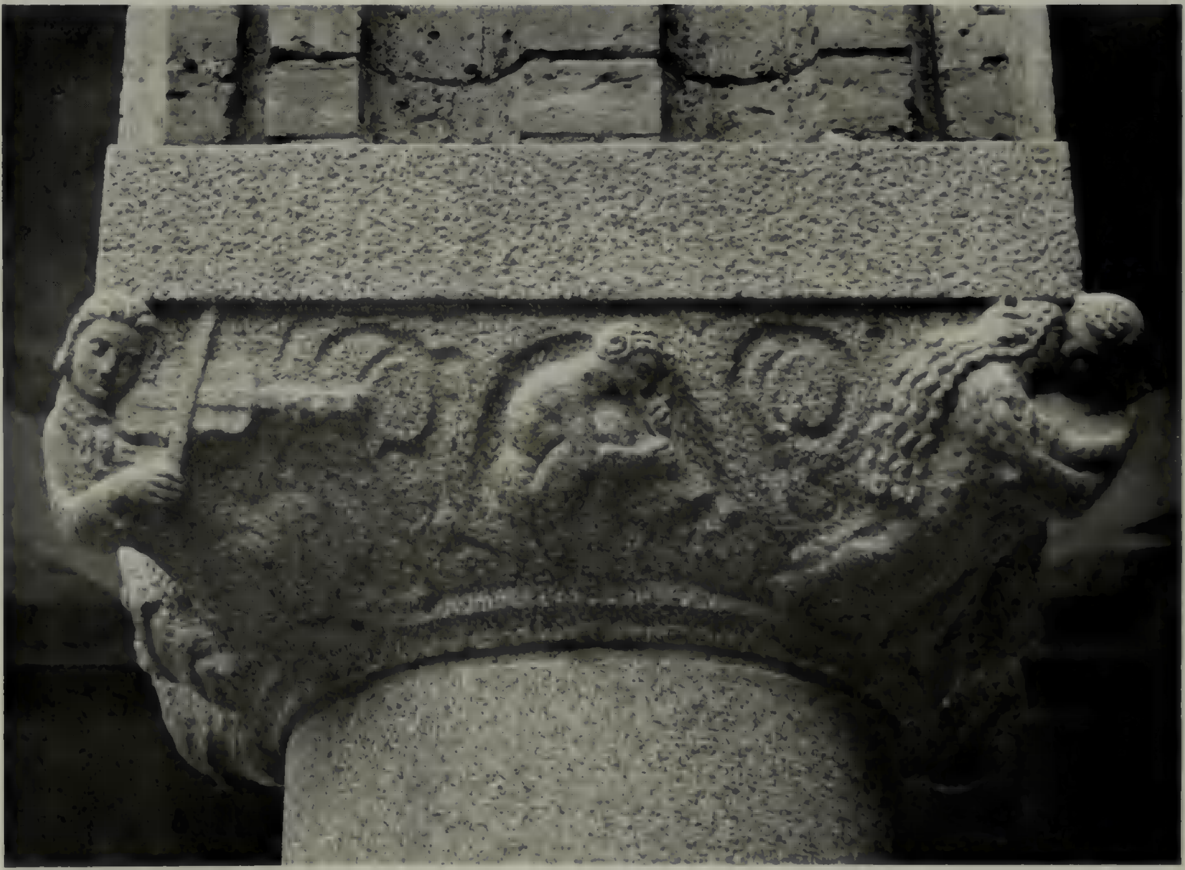
The Swedes use stucco a great deal, usually in warm tones as befits the northern climate. In this same southern arcade of the City Hall it is applied over the brickwork in a thin coat almost like an application of plastic paint. It is given a water finish with a brush, and a subtle texture is secured by the thinness of the coat which follows the uneven brick surface and occasionally shows the outlines of the bricks beneath. Mr. Ostberg in his crematory at Hälsingborg, which will be another fine

Photo. American-Swedish News Exchange

MODEL FOR "SAUL ATTARSUS"
CARL MILLES, SCULPTOR



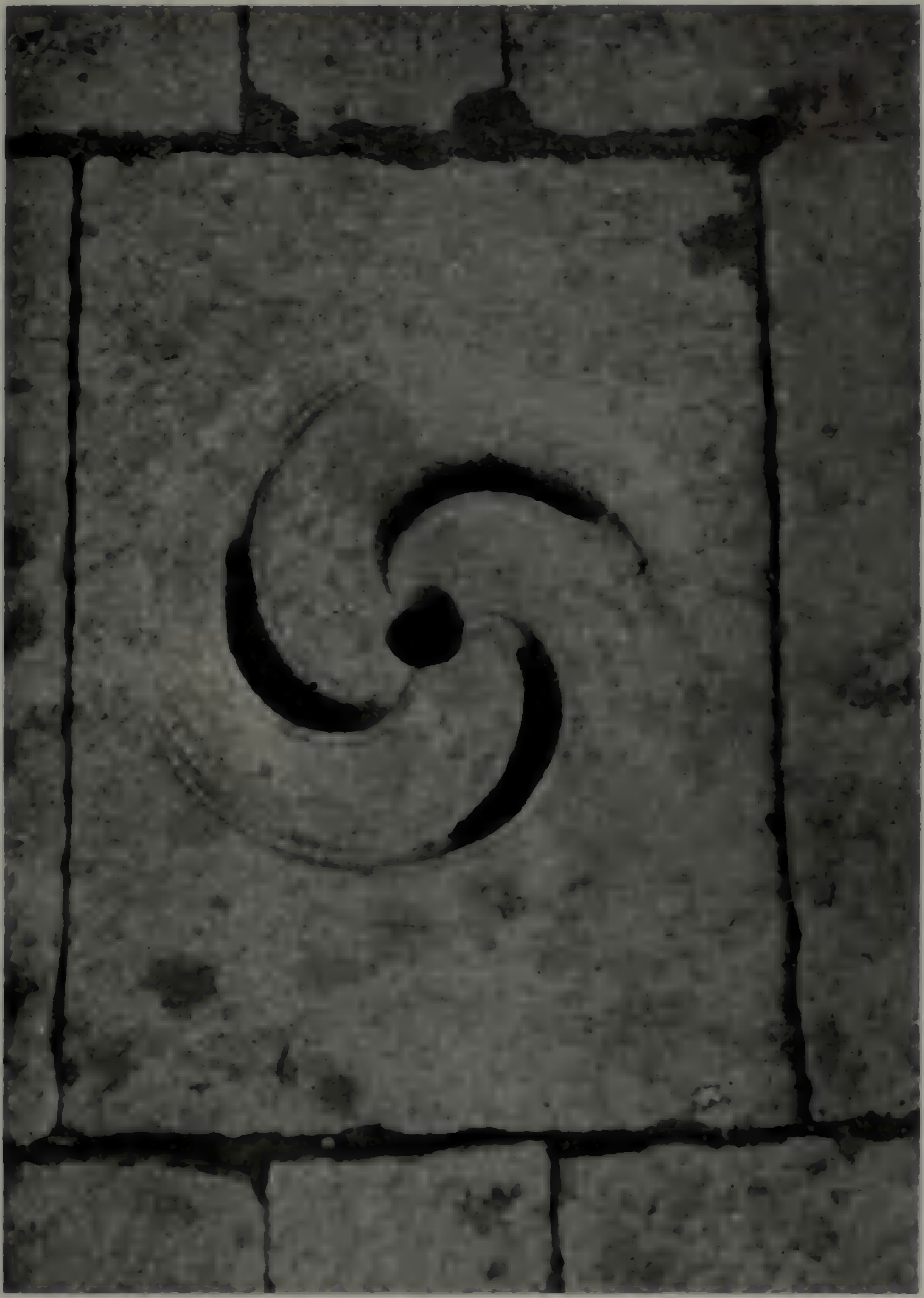
"FOREST HUNTING"



"FIDDLES AND DANCING"

CAPITALS IN SOUTHERN PORTICO, TOWN HALL, STOCKHOLM, SWEDEN

RAGNAR OSTBERG, ARCHITECT; ARON SANDBERG, SCULPTOR



GRANITE PAVING STONE,

TOWN HALL, STOCKHOLM

RAGNAR OSTBERG, ARCHITECT

"The capacity for creating the utmost artistic form out of the content of the material is present to some degree in most of Swedish architecture"

example of monumental brick architecture, is using a thin coat of white stucco over a brick base. The effect is more beautifully modulated than a regular stucco finish, and more unified than the effect that we produce in this country with white paint or whitewash over brickwork.

For interiors stucco is carved in relief. The stucco used is the undercoat of fresco, and no attempt is made to bring it to a high finish. It is possible in this material to combine drawing and relief in an exceedingly fresh way.

The exposed ceiling of the gorgeous gold hall in the *Stadthuis* consists of the structural concrete beams, with relief added in stucco and color applied. The gray tones of the natural concrete forms are excellent backgrounds, at the distance of the ceiling from the eye, for the soft, rather earthy tones of color that are applied.

Ironwork is an unbroken tradition in Sweden; nowhere is it surpassed. And almost nowhere in Sweden is it found necessary to make twentieth century lighting fixtures by putting electric bulbs in china candles; modern problems are solved more imaginatively than that.

PICTURESQUE ARCHITECTURE

BY HENRY WRIGHT

THERE is a peculiar hankering for the picturesque that seems to haunt nearly all of us. In the architect it crops out in most unexpected places. Wherever one glances from the upper story of a city building, there is the damaging evidence: a pent house masquerading as a gothic lantern, or an otherwise practical and efficient loft structure topped out with spires or minarets. A great masonic building surmounts its mass with a replica of a small Greek temple, and a recent city court-house, of office-building type, breaks into a classical superstructure to make sure that the passer-by shall recognize its public character.

In house design it is a common experience to run upon affectations of rough sagging brickwork that the mason has been prevailed upon to introduce with painstaking care, or to find even a door lintel purposely set out of plumb. The designer of some of the most chaste and reserved of our country houses recently returned from abroad with a pair of hoary studded castle doors, to be built in as a portal to an American group of estate buildings—where they are seldom if ever to be closed, least of all for their erstwhile purpose of defense.

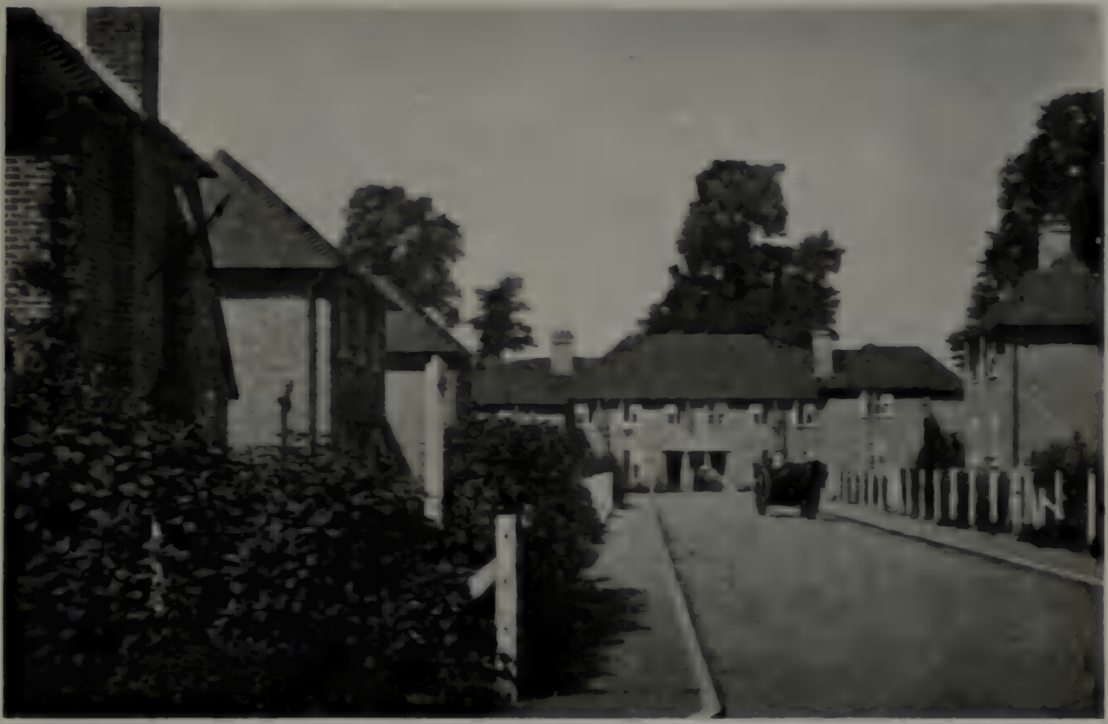
Are such mental aberrations the result merely of good-natured efforts to meet the whims of romantic clients, or do they mark some irrepressible nostalgia of the architect for the scenes of his early student days, when he wandered among the villages of Normandy or Surrey, or among the hill towns of Lombardy?

This quality of the truly picturesque: is it something to be recaptured through the form or detail of a single tower or gateway, or even through a complete building, however cleverly translated in stone and slate and delicate wrought iron work? Certain it is that many an architect whose early work has been marked by clever tricks of detail seems later to grow more reserved and seemingly matter-of-fact. Has he fulfilled, or only suppressed, his earlier desire for picturesque expression?

The layman who brings home the hasty impressions of his tour abroad in the form of postcards may be satisfied with the effort to counterfeit the picturesque quality of another land and time. Not so the true architectural student. His sketches of some fragment or tower are, though perhaps unconsciously, shorthand notes of a complete environment; they mean something more than can be recorded by the best photographer or the cleverest artist. Revisiting the scenes of his early travels the architect finds most of the particular buildings or remembered details rather disappointing, but he is more than ever impressed with the effect of the *environment as a whole*. The picturesque quality which he has cherished, and which is in such violent contrast to his daily environment at home, is a matter of inimitable, simple mass unity, of a pervasion of color tones, of a composition which has limits and has become a pleasant fixture in its familiar landscape. He realizes that reproduction or imitation is futile unless in some magical way the environment may also be reproduced.

Among the many interesting villages which were hastily built for ammunition workers in England during the war was that of "Well Hall" near London, which, judged from illustrations, seemed to the writer to reproduce in a simple way some of the accidental charm of the old English market town. But when later in London he mentioned his desire to visit "Well Hall" to an English architect friend, he was answered by a shrug of the shoulders and the reply, "But why? We who know old England find little satisfaction in modern imitations."

A new charm, of a quality such as will be found here and there in the recently built garden cities of Letchworth, Welwyn and Hampstead, arises directly from a frank



CLACK LANE, RUISLIP

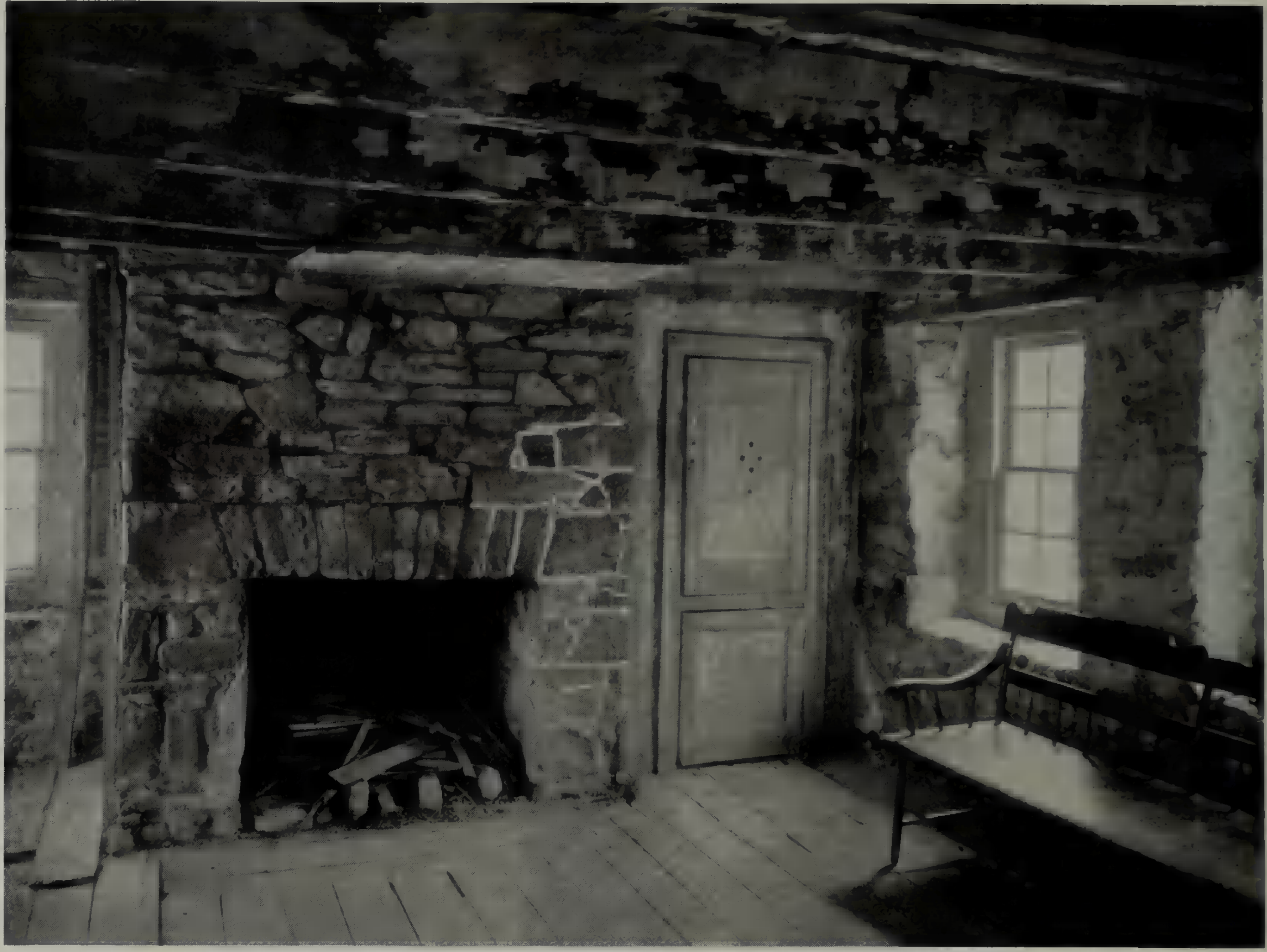
S. SOUTAR, ARCHITECT

The picturesqueness derives from rational planning for the whole environment

and simple grouping of the simple elements of a complete community. This is the case also in some of the many recent English housing schemes, though their interest is limited by the fact that they are composed only of dwellings, largely of one class, and made monotonous by too meticulous an observance of cost efficiency in roof design.

The student who goes abroad to study should not fail to follow the progress of community planning and building that has resulted in the extensive housing schemes of many countries from coordinated efforts under government control. Particularly in Holland and in the suburban developments of certain cities of Germany and of Vienna (called *Siedlugen*) the problem has frequently embraced the complete planning and grouping of communities including houses, apartments (usually three or four stories), and community structures, such as schools, churches, libraries. Projects of this sort require the close coordination of the engineer and architect, on problems ranging from those of the adaptation of the original ground contour, to those of the use of walls, fences and trees in bringing about a completely coordinated whole. Not infrequently do we find much of the satisfying picturesqueness of the old village, and why not? since the same elements of harmony and scale are again present. In the remarkable town of Hilversum, Holland, to take one of the best examples, Architect Dudok has carried through such work for many years, and has developed a remarkable technique in handling the simple elements of scale and harmony in groupings of schools, library and City Hall with surrounding dwellings, to form group masses which bring into play all the elements of complete community unity and a mass interest. Unfortunately such results cannot be successfully recorded by the photographer any more than can the subtle quality of the old-time picturesque.

And here the writer intends no glorification of the work of foreign men, nor does he doubt the capability of our own designers to accomplish even better things once given the opportunity to work again with problems that embrace the elements of mass unity and charm. What he hopes to make plain in this and succeeding articles is the need for community organization to extend the architect's field of usefulness and practice. For the satisfaction of good community work transcends that of doing well the best of individual work, now subject to the unfortunate exigencies of a changing surrounding environment.



RESTORATION OF OLD SPRING HOUSE ON ESTATE OF H. H. COLLINS; R. B. OKIE, ARCHITECT

THE RESTORATION OF OLD BUILDINGS

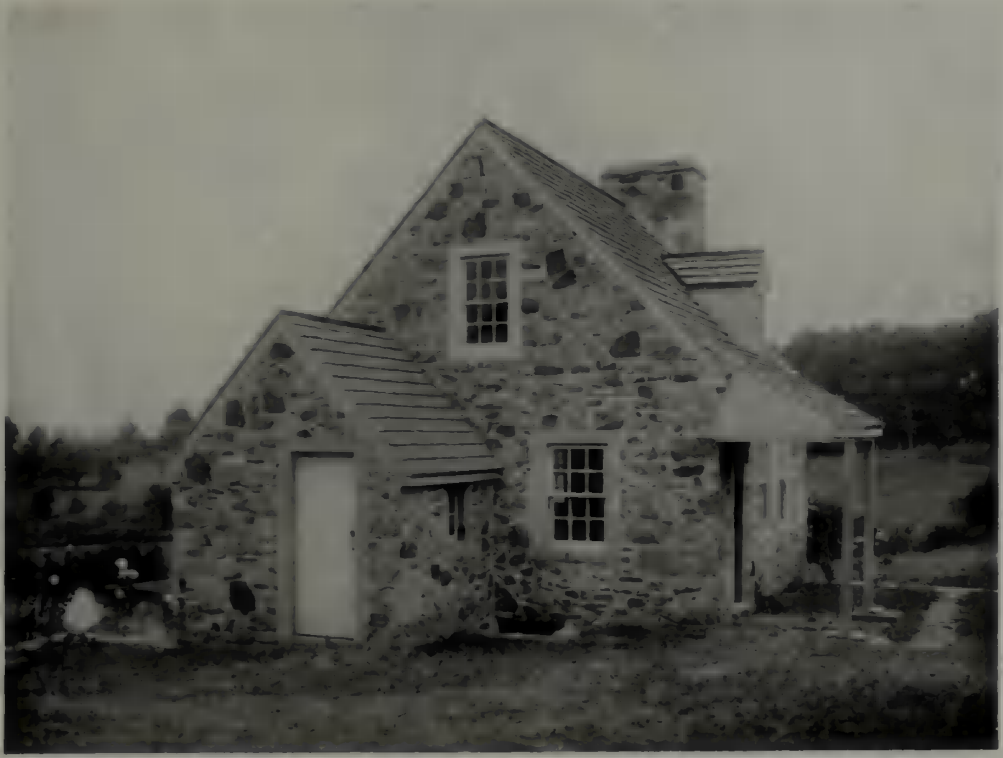
Since architects are frequently asked to make over old and worthy "Early American" dwellings and other buildings, a caution should be expressed as a guide for restoration.

There are, indeed, extreme opponents of restoration who maintain that we have no right to touch an old building except to keep it in reasonable repair and that we *cannot rebuild* what has been injured by the destructive forces of time. Much well-intended restoration has meant the stripping of buildings "of some of their most interesting material features, while the best has its exact analogy in the restoration of an old painting where the partly perished work of the ancient craftsmaster has been made neat and smooth by the tricky hand of some unoriginal and thoughtless hack of today."

The same attitude was expressed a few years ago in a resolution offered at a meeting of The Architectural League of New York with reference to the repair of Rheims Cathedral:

> "To restore this structure further than to roof it and merely preserve what is now left, even if done in good faith, would be a further calamity—for as we cannot longer work in the spirit of its times, we cannot give back to the world this great monument in its original glory."

"Those who make the changes wrought in our day under the name of restoration, while professing to bring back a building to the best time of its history, have no guide but each his own individual whim to point out to them what is admirable and what



The making over of an old spring house on the estate of H. H. Collins (shown herewith) was done by R. B. Okie, architect, of Philadelphia, and serves to illustrate a faithful preservation of old walls with addition of porch (restored). The interior was left with repairs clearly visible and with surfacing of beams and walls untouched

undesirable; while the very nature of their task compels them to destroy something and to supply the gap by imagining what the earlier builders should or might have done. In the course of this double process of removal and addition the whole surface of the building is necessarily tampered with; so that the appearance of age is taken away from such old parts of the fabrics as are left, and in short, a lifeless forgery is the final result."*

While ill-considered repair will have the inevitable dullness of imitation, yet to say that no reconditioning should be made, or that old buildings of lesser importance may not be "made over", would be a humiliating admission of professional helplessness. Restoration of the houses of Annapolis that are of historic interest or of the Missions of the Southwest should imply repair of the existing fabric and not the replacement of parts removed unless documentary evidence exists as to the exact character of such original parts.

If a building is to continue to serve work-a-day uses, then a certain modernization is inevitable such as the addition of heating equipment and electric lighting. The procedure of restoration can only be safe when there is conclusive evidence within the building repaired for every part removed and every replacement that is made. The *supposed* cornice of the *presumable* doorway wrought in the fashion of the time is never to be accepted as satisfactory. Any restoration that involves the addition of a detail that is merely assumed to be correct is sure to be a dangerous and misleading one. A colonial building, forged in part or as an entirety, is as little like a genuine unmodified colonial building as an imitation of Phidian sculpture is like an untouched original.

We have been speaking of buildings of the first importance—the sort that should be preserved without change. There are also many structures of lesser historic or artistic interest such as farmhouses that may be entirely remodeled and with needed additions made to serve present-day convenience.

The aid of research and archaeology in the restoration of Williamsburg will be considered in a later issue. A. LAWRENCE KOCHER.

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* Condensed from the Principles of the Society for Protection of Ancient Buildings, London.

WHEN DOES IT PAY TO REMODEL?

BY GERHARD HIRSCHFELD

THE question of remodeling or replacing an old building arises as soon as its earning capacity is less than the potential *rental value of the ground*. This earning capacity is, however, not easily determined and can never be fixed exactly since it involves not only the actual land value—estimated easily enough from rents obtained in neighborhood buildings—but also, what is of far greater importance, the future value of the property. It is the latter that actually fixes the trade value of a piece of land, according to the speculation of the rising value. The nearer the property to the heart of the city, the more true this is.

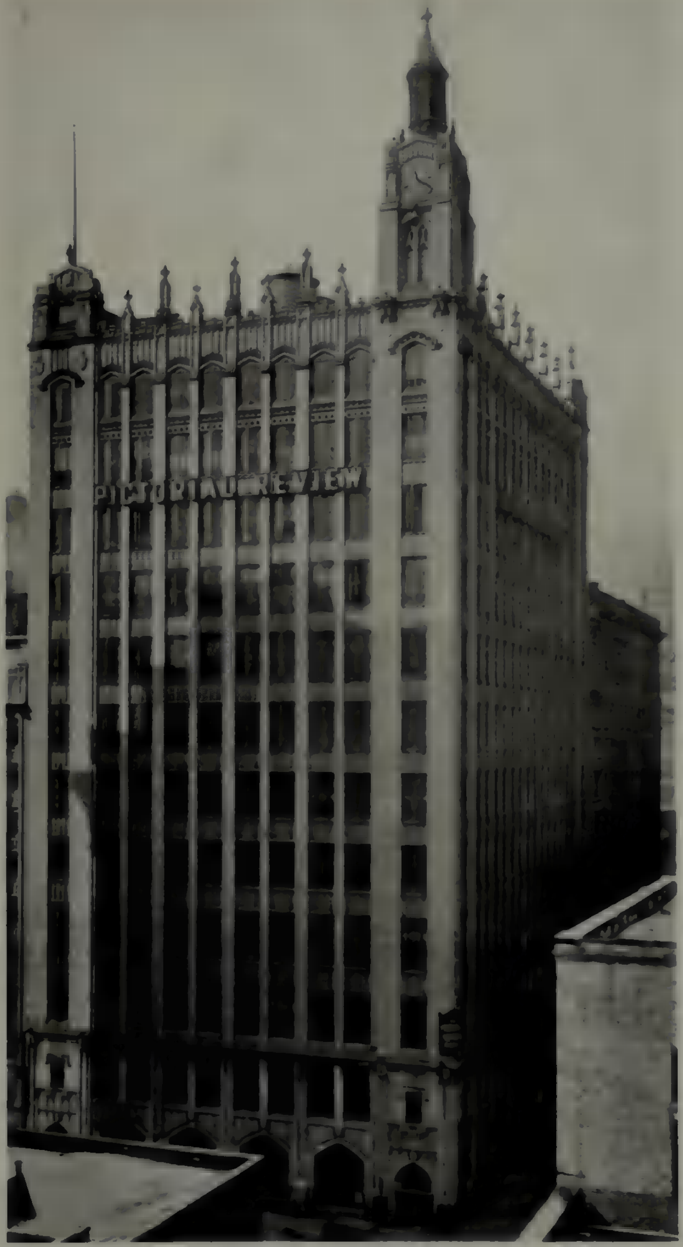
The gross rental obtainable depends upon several factors, namely density of population, transportation facilities, trade and shopping conveniences, ease of access and intercommunication, proximity to banks, exchanges, railroad stations, terminals. It is on the basis of the *gross rental obtainable* more than anything else that remodeling or rebuilding can be decided. The final question of the owner is "How much can I get out of my property?"

The tendency at the present time is, no doubt, toward the loft building. This is because of the rising value of the land. A typical example in New York City is that of the former Pictorial Review building which was erected less than seven years ago for printing purposes. The trade has shifted in the meantime and the necessity arose to choose between remodeling or reconstructing the building so as to adapt it to the new character of this district. The old structure consisted of 12 stories. It was excellently built. But the greatly increased land value soon made it apparent that the rentable area, and therefore the possible income, could be considerably increased; and so, a 30 story building was built on the same plot. The height of the stories was reduced, the building being designed for the textile industry (showrooms and light manufacturing). As soon as it was clear that the greatest possible income could be derived from a 30 story structure, it was apparent that the existing foundation and the steel frame were both inadequate, not to speak of the elevator plant.

Generally speaking, the shift of trade is a less important factor in the question of remodeling or rebuilding than the rising value of the property. Experience shows that remodeling is a dangerous undertaking in crowded centers or in the heart of the city. This is because remodeling, in general, serves and can serve only for a limited period of time. Wherever the land value is steadily increasing, as is nearly always the case in central sections of larger cities, a remodeled building will soon fall behind the property value.

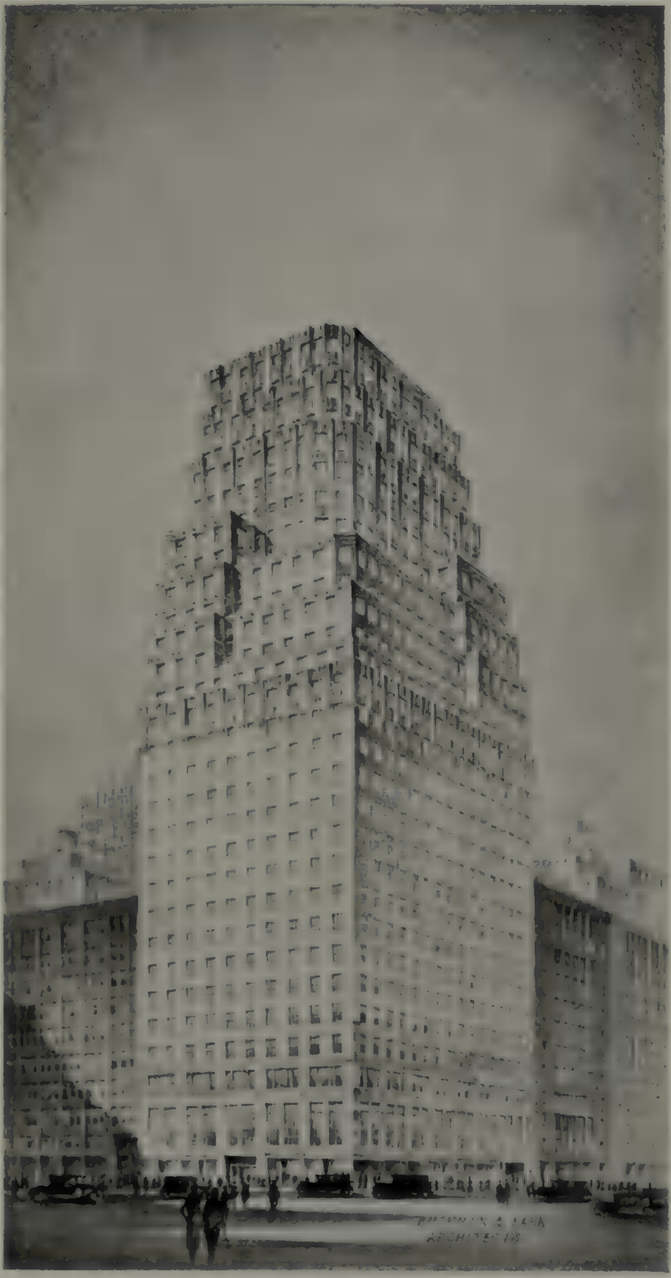
There is, for instance, the former department store section in New York City along Fifth and Sixth Avenues from 14th Street to 23rd Street which has been almost completely remodeled. Yet today a large part of the store area is vacant, because the trade on which the department stores depend has shifted to the upper Fifth Avenue section. The subdividing of large ground floor space into small stores has not helped greatly in solving the renting problem. It seems that the fact of a sectional change in the business district, and the question whether this change has actually been completed, have not been given adequate attention. There is, however, a way of reserving the right for future adaptation to suit the eventual character of the district. This is proved by the five or six new buildings now going up around Varick Street and the Holland Tunnel. These buildings are so constructed that future alterations can take place without any considerable outlay or expense.

The decision to remodel or to replace an old with a new structure has to be made according to the individual circumstances.



OLD PICTORIAL REVIEW BUILDING

ASPINWALL AND HOOKER, ARCHITECTS



NEW GARMENT TRADES BUILDING

BUCHMAN AND KAHN, ARCHITECTS

The building at the left was only 7 years old when it was razed to make way for the building shown at the right. Trade had shifted and the demand for space increased. The old building was for printers; the new is for garment trades. It was not advisable to remodel

At Madison Avenue an old building consisted of two brownstone dwellings. Since this district had become an important business center, it was decided to remodel the two dwellings by breaking through the dividing wall, thus creating one building. The gross rental obtained from the old building amounted to $40,000.00 a year. The alteration cost which transformed the five-story structure into an up-to-date office building was $155,000.00. The gross rental derived from the remodeled houses amounted to $107,000.00 a year which is equivalent to an increase of almost 170 per cent. In this particular case it was not found advisable to erect a tall building, for on the adjoining plot stands a loft building with which the new office building would have had to compete, had this in turn been replaced by a 15 or 20 story structure. The example of this 5 story building which has been remodeled with such surprising results, cannot be generalized upon; on the contrary, it should serve only as an extraordinary instance of what remodeling can do to increase the earning capacity of an old "taxpayer".

It is clear from the foregoing discussion that no fixed rules can be laid down to decide when a building should be remodeled and when it should be replaced. However, there are certain economic principles which it is well to remember whenever the choice between remodeling and rebuilding presents itself:

REASONS WHICH SUPPORT REMODELING

a. Land value not greatly changed;
b. Rising value of property not much in prospect;
c. Remodeling changes for short period only;
d. Slight changes can bring about desired results;
e. Alterations would not change character, height and size of building;
f. Shift of trade improbable;
g. Class of people remains the same;
h. Situation and neighborhood practically unchanged.

IN THE SAME BLOCK AS THE HUGE CHRYSLER BUILDING

A few doors up it has been found profitable to plan the 3-story structure shown in the sketch for a Childs Restaurant

MORRIS WHINSTON
ARCHITECT

WHEN NEW STRUCTURES ARE PREFERABLE

a. Land value changed;
b. Rising value of property offers great prospect;
c. Building to stand for longer period of time;
d. Considerable changes necessary in height as well as in size;
e. Character of building quite different from old structure;
f. Other class of people and customers;
g. Trade has shifted;
h. Situation, neighborhood and character of district entirely different from those which created old building.

The speculative moment in relation to the estimated land value is of decisive importance. Its significance depends on the economic development of industry and architecture, on trade, traffic and other factors. The growth of the city also enters into the picture.

A structural factor to be considered is that of the position of columns. Their close spacing often precludes the possibility of remodeling for undivided offices or subdivisions, though they may lend themselves very well to subdividing the available space into small offices. But in the majority of these cases of column-structures the erection of a new building will probably be a foregone conclusion.

With respect to tall buildings, mention should be made of the fact that aside from the land value, shift of trade and other factors, advertising plays an important part. Buildings such as the Woolworth in New York City are said to have only a small earning capacity, and many of the skyscrapers earn hardly more than 3% whereas they issue 6% bonds, the owning company apparently charging the balance off to advertising.

TECHNICAL NEWS AND RESEARCH

Previous Studies:

Swimming Pools, Storage Garages, Apartment Houses, The Small House, Airports, Store Buildings, Kitchen Planning, Sound Proofing the Hospital, Planning High School Buildings, New Construction Methods, The Country House, Planning the Art Museum, Prison Architecture.

Future Studies:

The Motion Picture Theatre, The Apartment House, The Office Building, and others to be announced.

Apartment of Mrs. Alfred Rose
ELY KAHN, ARCHITECT
Room enlarged by removal of two closets beyond face of beam

REMODELING: AN OPPORTUNITY FOR THE ARCHITECT

REMODELING: AN OPPORTUNITY FOR THE ARCHITECT

BY ROBERT L. DAVISON AND WILLIAM E. MALM*

The architect by his training and imagination should be able to visualize opportunities for improvement through remodeling that might entirely escape the eyes of the owner, focused on his property as it stands. Remodeling, though it issues in greater profits, is generally a matter in the first place of an increase in pure attractiveness.

There is always some remodeling under way, but it is particularly important in periods of general building depression, when the foresighted architect will seek out remodeling opportunities as a means of "making business." This article is intended to give a survey of the ground.

Remodeling can be a profitable field. The idea of renovating an old building that is "slipping" in rentals as it moves inevitably into antiquation is not, at first sight, calculated to stir the architect's enthusiasm. An excess of time and energy is required and the results can hardly be "new." Nevertheless there are architects who have discovered that this troublesome and routine work has paid the running expenses of their offices: one Chicago firm specializing in office building design has gone so far as to create a division concerned entirely with remodeling and improving stores. No commission, however small, is rejected, and although some jobs bring in less than $100 as a percentage payment, there remains a net profit on the sum of all the work sufficient to more than cover office rental and the required drafting. Meanwhile, as we shall see, there is no field more challenging than remodeling to an architect's powers of pure design.

It is generally conceded that the commission for remodeling should exceed the customary—or should we say the *desirable*—6 per cent charge for new work. The services rendered by the architect are greater. He must give attention to unusual details, such as demolition, the measuring up of old walls, revamping foundations, and combining old materials with new. Charges for remodeling should fall within a range of between 8 per cent and 15 per cent, depending on the size and nature of the undertaking.

Remodeling is a neglected field. While the chief concern of architectural design is with the creation of new buildings, there is hardly a structure that does not at some time undergo alteration, renovation, or modernization, for the sake of the very usefulness that was originally intended by its architect. It is estimated that 10 to 15% of the volume of building in the United States is actually taken up in the making over or enlarging of existing structures. This, curiously, is an aspect of the professional practice that has received little or no attention from writers, nor has the architect often considered what methods can be deemed economic and scientific. The question itself: when to enlarge, when alter, or when tear down and rebuild, has remained outside the architect's purview. The profession has hardly recognized that there might be such a thing as a technique of remodeling. Building managers, however, have made an extensive study of this subject, and many of the observations presented in this paper are the result of their experience.

The immediate need for attention to possibilities of remodeling can be inferred from the following analysis of the present building situation:

> *"On October 1, 1929, vacant space in office buildings amounted to 11.55% of the total rentable area. This was ascertained in a survey covering thirty-eight cities and including 1,676 buildings with a total rentable area of 140,141,074 square feet . . . New buildings now under construction will add nearly 10% to the present supply of space.* ASSUMING THE MAXIMUM RATE OF ABSORPTION *that has prevailed in recent years, we may anticipate a vacancy in May, 1930, of 16%." Paul Robertson, of the National Association of Building Owners and Managers, at conference of Business Leaders with President Hoover.*

Since this surplus of vacancies will restrict the opportunities for new building, we may well now scan the opportunities for remodeling.

I. WHEN TO REMODEL

A. THE MEANING OF "OBSOLESCENCE"

At the root of the question whether to remodel or whether to build anew is the word *obsolescence*. If the present building is "too" obsolete, it must be replaced; if less obsolete, it may profitably be remodeled, particularly when business conditions prevent the erection of a new building. It is necessary, therefore, to know what "obsolescence" is, and what it is not.

1. *Obsolescence is not physical depreciation.* In the United States at the present time *the profitable life of the average building is only one-third its possible physical existence.* Obsolescence depends not on the physical

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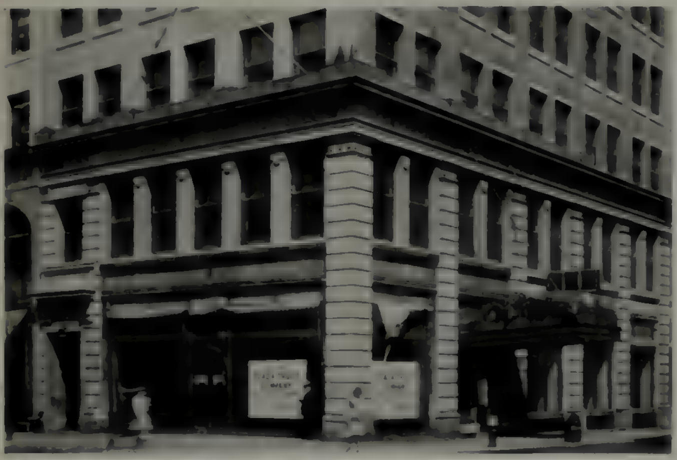
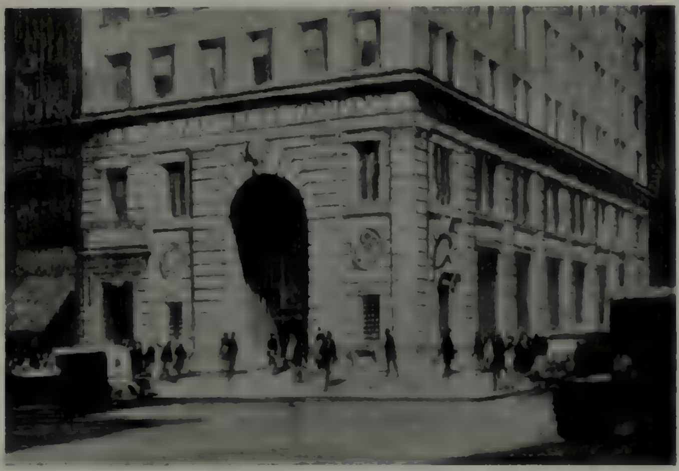
* We wish to express our appreciation of the kindness of *Building and Building Management* of Chicago in permitting the use of material by Mr. Malm which has appeared in its pages.



Photos. Wurts Bros.

PREMISES BEFORE ALTERATION



AFTER ALTERATION

BANK FOR PLAZA TRUST COMPANY, NEW YORK

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

Interiors and plans of this alteration
will be found on succeeding pages

soundness of your own building but on the relative efficiency of other buildings, just as "a piece of machinery in a factory is obsolete and useless as soon as a new kind of machine is made which can perform the same work more cheaply or more efficiently, even though the first machine is still in good physical condition. A woman's dress is obsolete as soon as a new style is put on the market. The sailing vessel was rendered obsolete by the steamboat. Hydraulic elevators in buildings are becoming obsolete through the greater economy, comfort and speed of the electric elevators. In other words, obsolescence is that which causes the useful and profitable life of anything to be shorter than its possible physical existence."*

2. *Obsolescence is the PROCESS of becoming obsolete, and so projects into the future.* It is therefore often wise to take purely preventive measures on buildings at present adequate. Thus, It is not always possible to appraise the value of an improvement in terms of increased income, as *increase does not always follow.* In projecting an improvement in order to stabilize rental conditions in a district it is well to consider what the *probable decrease in revenue* would be *if we failed to modernize* our properties. This is one element which *many owners fail to comprehend*, and probably why rehabilitation of districts is postponed until after business starts an exodus from the locality, but we cannot be overcritical as every operator desires to obtain a return on his improvement investment.

3. *Obsolescence arises less from inherent faults of the building itself than from changes in the other buildings of the neighborhood or city.* It is frequently caused, as has already been hinted, by competing buildings of later date that (1) provide a greater efficiency in layout and operation, that (2) give more modern and complete service, or that may even have an immediate disastrous effect by (3) cutting off the light and air of the older building, or by (4) making it appear incongruous.

B. CALCULATING OBSOLESCENCE

A discussion of the economic factors which are the province of the business man or real estate operator may seem out of place in an architectural magazine, but it is well to know the basic principles upon which the possible client must proceed. Indeed the architects who seem to be getting the commissions are those who can speak intelligently upon the business problems of their clients as well as upon planning and aesthetics: *and only this sort of architect is likely to discover opportunities not yet exploited.* The main steps in the calculation, then, might be as follows:

1. *Vacancy percentage.* Should a building be remodeled or replaced? This depends largely on vacancies, and so the vacancies and building rates over a period of years for the city in question should be plotted and projected into the future, especial attention being given to buildings under construction or contemplated. Should an oversupply of space seem likely, it is advisable to remodel and await a more favorable market before building.

2. *Land Value vs. Building Value.* It is generally desirable to tear down and build rather than remodel when the cost of the land exceeds the cost of the present building. This is a very simple rule of thumb.

3. *Shift of Population and Trade.* Business centers are always shifting. The retail section tends to follow the high class residential district and the office

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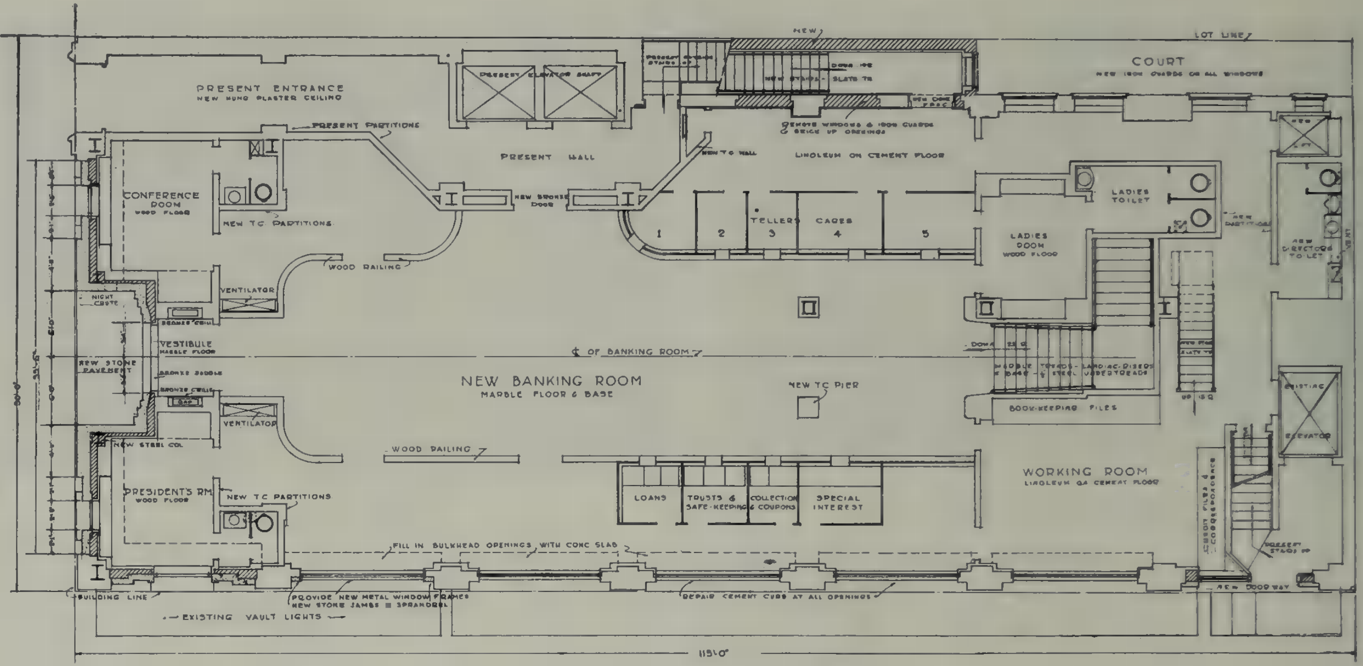
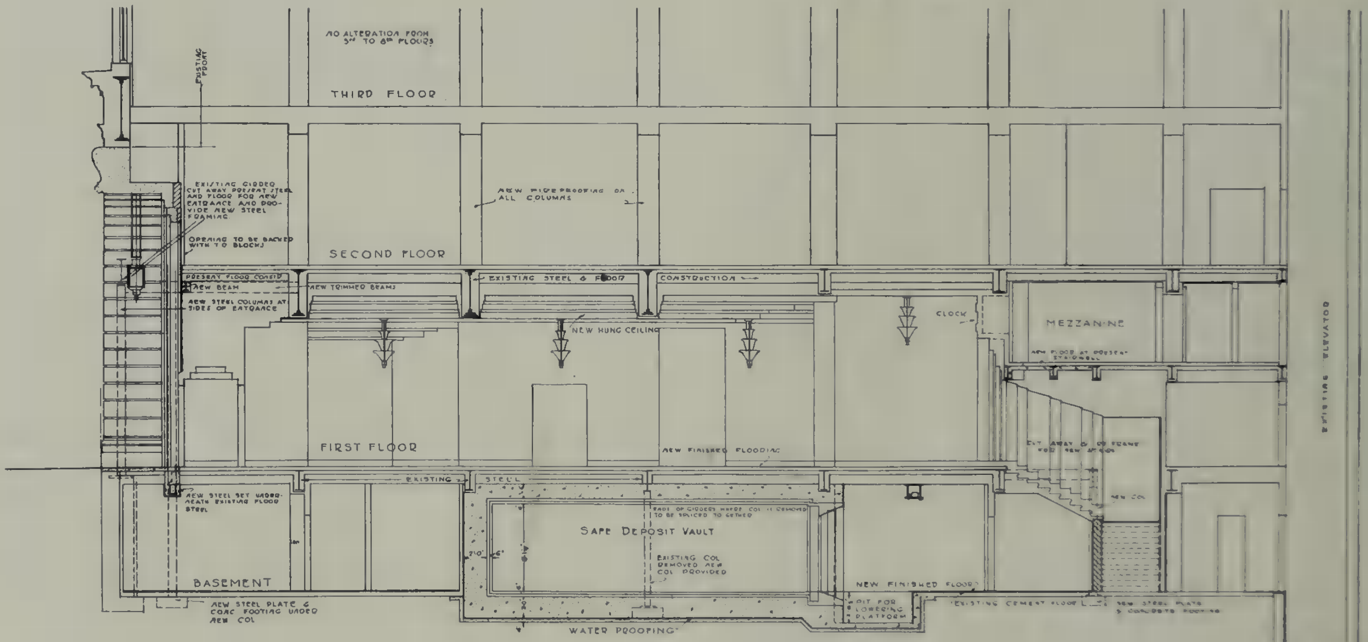
* The effect of obsolescence on the useful and profitable life of buildings. Earle Schultz, 1922. Page 203.



·FIRST FLOOR PLAN·



LONGITUDINAL SECTION

BANK FOR PLAZA TRUST COMPANY, NEW YORK

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

The one structural change was the removal of a column at the rear of the building to obtain access to the safe deposit vault in the basement. It was decided at the outset to remove all former architectural forms and plaster the existing structural frame in such a way as to gain all possible space. The ceiling was dropped to make a portion of the ceiling coffers shallower in relation to their width. The original plan for a decorated ceiling in the banking room was abandoned for lack of time.

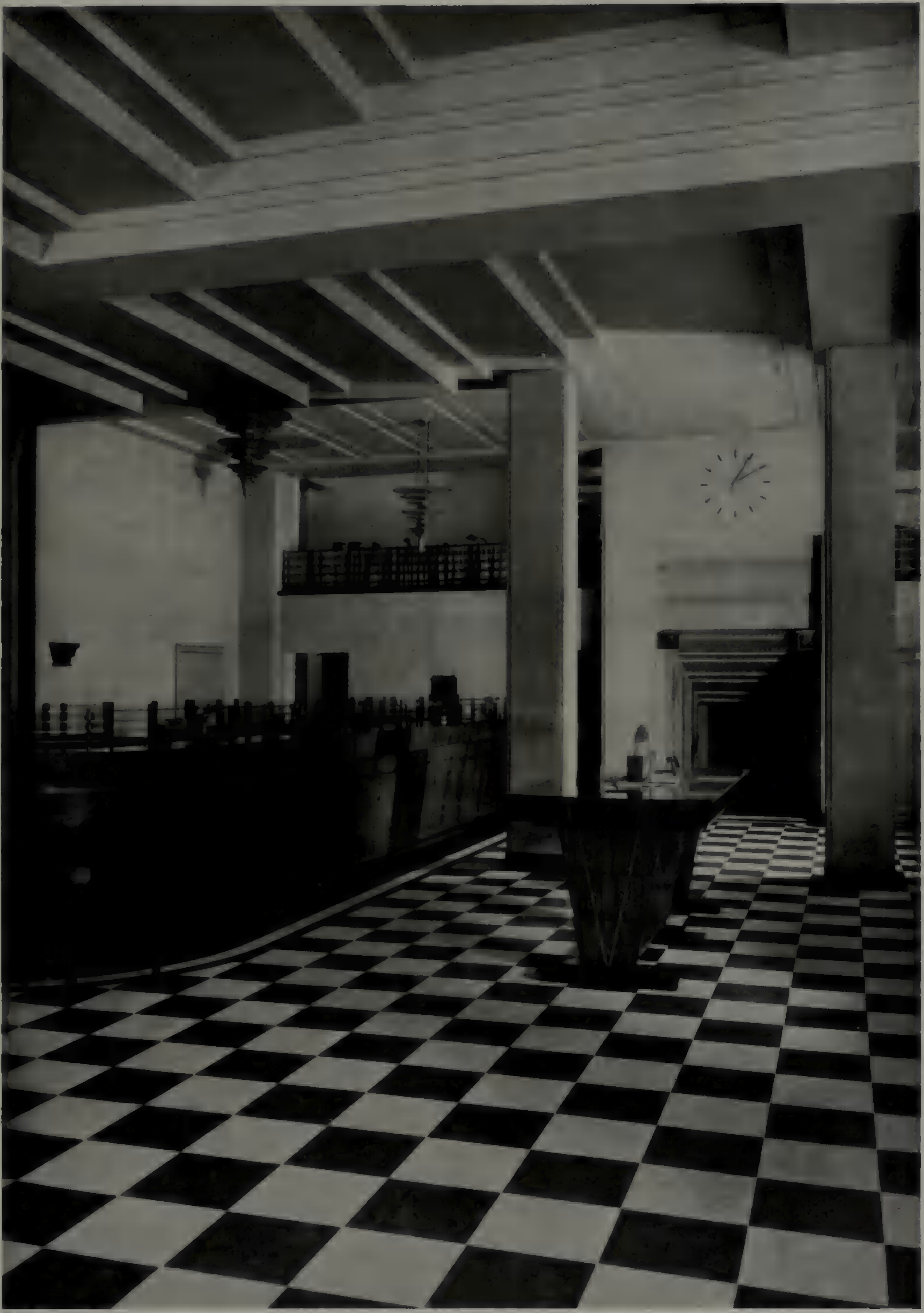


Photo. Van Anda

BANK FOR PLAZA TRUST COMPANY, NEW YORK
CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

section to follow the retail. If a property lies in the line of a new development, new construction is generally preferable, but if business is likely to move on it is better to remodel.

4. *The Neighborhood.* Obsolescence is so much a matter of the *relations between buildings* that sometimes the best way of rescuing a single building is to redeem an entire neighborhood. All cities have examples of such rejuvenation as has occurred in Greenwich Village in New York City, in the northern section of Beacon Hill in Boston, and in Santa Barbara. Work upon a neighborhood, or indeed any remodeling work, requires skill, imagination, knowledge of periods and designing ability perhaps in excess of what is required for a new apartment house. The new apartment may be said to be rented by elaborate foyers, tile baths and efficient kitchens; the remodeled building by its large rooms, fireplaces and a picturesque approach.

II. STORE BUILDINGS

A. BUILDINGS WITH A STORE ON LOWER FLOORS

Exterior remodeling of buildings containing stores is generally confined to the first two floors. The income from the stores is expected to carry the ground rent. As the land value increases the stores must bring in more rent, so that it is necessary to increase their attractiveness. Since people walking along the street seldom lift their eyes above this height the remainder of the building does not count.

Remodeling an entire facade is justified, however, in a first class retail district that advertises itself through full fronts in the most fashionable mode. Complete remodeling of the facade may otherwise be necessitated by a crumbling wall such as that of a sandstone front which is spalling off. It is the opinion of consultants that "only the exceptional building can show any justification for costly improvements embracing the entire facade, since shops command their high rentals primarily on account of good locations, while office rates are determined by the excellence of both interior and exterior treatment of the building, the efficiency of the office plan, and regularity and quality in the building services, given the good location."

B. MODERNIZING THE SHOP FRONT

Shop front remodeling may (1) bring an old style "up to date" or (2) it may alter an existing type for

TABLE A

IMPROVEMENT COST—STREET STORES (255 Lineal Feet of Frontage on Street)

		Amount	Cost Per Running Foot	Per Cent of Total Cost	Remarks
Surveying		$ 140.50	.56	.13	
Granite, material		14,775.00	59.10	14.5	Polished—6 inches in thickness
Masonry		571.93	2.00	.56	Support for granite facing and store entrances
Steel Framing		3,892.63	15.50	3.88	
Granite, setting		2,800.00	11.00	2.76	
Concrete		509.14	2.00	.50	
Waterproofing, slab		393.33	1.47	.38	
Stonecutters		1,238.70	4.85	1.23	Cutting down column faces and fitting granite
Terrazzo		4,140.01	16.50	4.07	Entrances to stores and building
Bronze		36,945.66	147.50	36.29	
Metal work		1,022.13	4.00	1.00	Air ducts to store basements; copper flashings, etc.
Plumbing		1,253.95	5.03	1.23	Interior down spouts to sewers
Plastering		2,589.39	10.30	2.54	Ornamental soffits in store entrances, etc.
Glazing		3,589.39	14.30	3.57	New plate glass
Carpentry: Labor		7,860.92	31.44	7.71	
Doors and Panels	$740.14				
Lumber	1,946.47				
		2,686.61	10.70	2.64	
Hardware		645.71	2.50	.63	
Painting and Decorating		493.79	1.75	.48	
Electrical work		2,000.37	8.00	1.96	Including entrance, fixtures and window lighting
Awnings		325.00	1.30	.32	
General Labor		4,471.71	17.78	4.39	Unskilled
Superintendence		2,277.50	9.10	2.24	
Architect's Fees		7,200.00	28.80	7.06	
		$101,382.13	405.48	100.00	

Buildings and Building Management

the sake of advertising values attendant on "smart style" or it may (3) rest on a careful reconsideration of the relative functions of window, display, and sign. The extent to which such a reconsideration can go and the freshness of its results are suggested in the article on page 138 of this issue dealing with new store fronts by Mr. Hagopian.

C. ARCADES

The architect should not overlook the possibilities for remodeling rear areas of business properties for the sake of creating *arcades*. Wherever there is a need of traffic short-cuts this form of development offers the owner (and therefore the architect) a real opportunity.

By the use of an arcade the rear of the building may sometimes be coaxed into yielding returns equal to those of the front. *Basement* arcades as traffic arteries are very profitable.

Some arcades carry a greater volume of traffic than passes in front of the building. The store fronts cost less there because they are not so exposed to the weather and permit simpler construction (see cost table below); and taxes per running foot are much less for arcade frontage than for street frontage.

IMPROVEMENT COST—ARCADE STORES

400 Lineal Feet of Frontage on Arcade

		Amount	Cost per Front Foot	Per Cent of Total Cost
Surveying		$ 60.00	.15	0.13
Marble		3,652.50	9.14	8.35
Concrete		121.84	.31	0.26
Terrazzo Entrances		3,108.04	7.78	7.09
Bronze		19,107.15	47.76	43.65
Sheel Metal Work		136.38	.35	0.31
Steel		400.00	1.00	0.91
Plastering		1,182.82	2.95	2.70
Glazing		1,340.84	3.35	3.07
Carpentry: Labor		5,334.52	13.34	12.18
Doors	$ 382.00			
Soffits	441.00			
Lumber	1,354.59	2,177.79	5.45	4.95
Electrical Work		199.18	.49	0.45
General Labor		1,571.05	3.92	3.59
Hardware		411.04	1.02	.94
Superintendence		870.00	2.17	1.99
Architect's Fees		4,100.00	10.25	9.36
		$43,773.15	109.43	100.00

Buildings and Building Management

D. DEPARTMENT STORES

It is estimated that 90% of all construction for department stores is remodeling. The prevailing practice is to provide for more business in a given space rather than to add floor area. It is assumed that 40% of the department stores occupy too much space inasmuch as a large store that does not seem very busy encourages looking rather than buying. People flock like sheep: they "follow the crowd" and buy where they must struggle for the chance.

1. *Density Ratios.* The first step in considering the advisability of remodeling a department store is to determine the existing density ratio. This is the ratio between the carrying capacity of the elevators and escalators in persons per hour to the total floor area in square feet above the first floor.

An example of the enormous increase in traffic provision in the modern department store is given by Macy's in New York City: The traffic density ratio at Macy's in 1863 was 1 to 80; in 1902 the ratio was 1 to 32; but this has gradually been decreased until today it is 1 to 19.

A density of 1 to 20 is now considered satisfactory for the upper floors of the average store but when the basement is used as an underpriced department a ratio should be maintained of 1 to 7.

2. *More Traffic Facilities or More Floor Space?* This decision, of course, rests with the store management but the architect will be aided in his rough analysis of the problem by the following rule of thumb: (1) If the transportation is being used to *normal capacity* and the ratio of floor space to elevator capacity is over 1 to 20 the chances are that additional transportation is needed; (2) If the density ratio is 1 to 20 and the elevators are being used to an average desirable capacity throughout the year the chances are that the store needs additional floor space; (3) If the transportation *is not* being used to *normal capacity* the sales policy of the store is probably at fault.

III. OFFICE BUILDINGS

A. MODERNIZING THE ELEVATOR EQUIPMENT

The most conspicuous equipment in our office and apartment buildings is, no doubt, our elevators. If they are dilapidated in appearance, slow in operation, and poorly lighted, they cast a shadow over the whole building and give the public a bad impression. By the features of our elevator equipment and service, we either prompt the prospective tenant to remain or cause him to seek other locations.

In the average improvement program, the cost of elevator equipment is usually the major item or expense, but it is also the factor of greatest importance. Whether or not an old building is warranted in installing the latest type of equipment or some modification of it depends upon the following elements:

Character of Tenancy
Rental Rates
Rental Area
Building Code Requirements
Traffic Requirements and Volume
Height of Building

There is no standard by which we can judge the adequacy of elevator equipment in buildings unless we have all the facts; therefore it is difficult to outline any procedure which can be followed in the rehabilitation of old buildings. The table of new and reconditioned elevator installations gives some idea of the scope of the work and the expense involved in modernization.

Table B

ACTUAL CHANGES MADE IN MODERNIZING ELEVATOR INSTALLATIONS, WITH TOTAL COST OF IMPROVEMENTS

(From *Building and Building Management*, August 12, 1929)

ORIGINAL EQUIPMENT				MODERNIZED EQUIPMENT		
Location	Date of Original Installation about	Type of Original Installation	Date of Change	Type of New Equipment	Approximate Total Expenditure	Number of Passenger Elevators
Cincinnati, Ohio. 240,000 sq. ft. net rentable office area.	1900	Vertical cylinder hydraulic elevators with steam pumping plant. Average car speed 500 f.p.m.; open grille cabs; open grille hatchway enclosures and doors.	1924	Gearless traction electric, multi-voltage control, car switch operation. 3 express, 700 f.p.m.; 3 locals, 600 f.p.m.; 1 service, 600 f.p.m.; new fireproof enclosures of steel and wire glass construction; manual door closers and interlock system; new high paneled enclosed cabs; new signal system.	$250,000, including building of penthouse, running power, feeders, engineering expenses, etc.	7
Cleveland, Ohio. 127,757 sq. ft. net rentable office area.	1900	Vertical cylinder hydraulic elevators with electric pumping plant. Average car speed, 500 f.p.m.; open grille cabs; open grille hatchway enclosures and doors.	1924	Gearless traction electric, multi-voltage control, car switch operation. No leveling feature. 4 locals, 600 f.p.m.; 3 express, 600 f.p.m.; 1 service, 400 f.p.m.; new fireproof enclosures of steel and wire glass construction; manual door closers and interlock system; new high paneled enclosed cabs; new signal system.	$186,000, including elevator enclosures, penthouse, etc.	8
Cleveland, Ohio. 87,000 sq. ft. net rentable office area.	1908	Worm geared electric, drum drive. Car speed about 350 f.p.m.; open grille hatchway enclosures; open grille cabs; plain car switch control.	1928	Gearless traction electric, signal control, multi-voltage micro-leveling. Car speed, 500 f.p.m.; new fireproof enclosures with steel and bronze entrances; electric automatic door operation; new Metylwood and bronze cabs; new signal system.	$123,000	4
Cleveland, Ohio. 178,000 sq. ft. net rentable office area.	1900	Worm geared electric, drum drive. Machines in basement. Car speed 325 f.p.m.; open grille hatchway enclosures; open grille cabs; plain car switch control.	1928	Gearless traction electric. Machines overhead. Car switch control. Multi-voltage automatic leveling. Car speed, 600 f.p.m.; new fireproof enclosers with steel and bronze entrances; manual door closers; new ornamental cabs with bronze fixtures; new signal system.	$165,000	6
Dayton, Ohio. 48,000 sq. ft. net rentable office area.	1918	Worm geared electric, traction drive. Car speed 400 f.p.m.; high paneled steel cabs; fireproof steel hatchway doors.	1926	Gearless traction electric. Car speed, 500 f.p.m.; multi-voltage control; micro drive; car switch operation (one hand); pneumatic door operators; new door hangers; new signal system.	$45,000 including new penthouse, architect's fees, etc.	3
Toledo, Ohio. 74,000 sq. ft. net rentable office area.	1913	Gearless traction electric. Car speed, 550 f.p.m.; resistance control, no leveling; car switch operation; open grille hatchway fronts and doors; no electric interlocks; wood cabs; signal system.	1929	Adding to the original equipment the following: Multi-voltage; micro-leveling; signal control; automatic electric door operation; new fireproof hatchway fronts and doors; 50 f.p.m. additional speed; new modern Metylwood cabs; new signals and automatic dispatcher.	$125,000	4
Cincinnati, Ohio. Main Building: 225,000 sq. ft. net rentable office area. Annex: 350,000 sq. ft. net rentable office area.	1912	Gearless traction electric. 8 locals, 600 f.p.m.; 4 express, 700 f.p.m.; resistance control, without leveling; car switch operation; fireproof entrance of steel and wire glass; manual door closers with interlock system; bronze high paneled cabs; complete signal system.	1926-27	Adding to the original equipment the following: Multi-voltage control; micro-leveling; automatic pneumatic operation of hatchway doors; increasing speed about 50 f.p.m.; new door hangers.	$100,000	12

B. DATA ON ELEVATORS AND ESCALATORS

The ideal department store elevator for large stores should satisfy the following specification:

The elevators should be designed for a duty of 4,500 lbs. at 450 f.p.m using "department store control" elevators, designed to stop automatically at every floor as is the practice in department stores. This frees the operator to answer customers' questions and call out the merchandise sold on the different floors.

The cars should be approximately 7′ 10″ in width by 5′ 10″ in depth inside size, and should have a wide door opening, varying between 5′ 6″ and 6′, depending upon hatchway conditions. Both the elevator car and the hatchway should be provided with center-opening power-operated doors, with the operation of the doors interconnected with the elevator control. For a car of this size, the inside size of the hatchway is approximately 10′ wide by 7′ 8″ deep, and for a bank of six elevators, the elevator frontage is approximately 62′, which is about the maximum permissible for good service.

An elevator of this type, operating as local in both directions between the first and tenth floors, making all stops, will have a carrying capacity of approximately 330 persons per hour, or a total capacity of 1,980 persons per hour for a bank of six cars.

In calculating elevators for department stores, the car platform must be figured on the basis of 100 lbs. per square foot loading, and not 75 lbs. per square foot, as is the practice in office buildings, due to the crowding of cars, which occurs in all stores. For smaller department stores and specialty stores the elevators should be of the same type, but arranged for a duty of 3,000 lbs. at 500 f.p.m., with a car size of 6′ 6″ wide by 5′ 0″ deep inside, with a 5′ wide door-opening. A car of this type, operating as local in both directions between the first and tenth floor, will have an approximate carrying capacity of 250 persons per hour.

Escalators for department stores are built in three different sizes, as follows:

2′ wide escalator, which means that the width inside between the moving hand-rails is 2′. Maximum carrying capacity, 4,000 persons per hour.

3′ wide type, 3′ between hand-rails. Maximum carrying capacity, 6,000 persons per hour.

4′ wide type, 4′ between hand-rails. Maximum carrying capacity, 8,000 persons per hour.

All escalators are built at an angle of 30 degrees and travel at a speed of 90 f.p.m. Due to the shape and construction of the escalators they always occupy a fixed area on the two floors which they serve as follows:

The area occupied by the lower landing is approximately 20′ in length. The width depends upon the size of the escalator as follows:

2′ wide escalator, overall width 4′
3′ wide escalator, overall width 5′
4′ wide escalator, overall width 6′

For the upper landing, the length is approximately 22′ and the width is the same as that given for the lower landing. Due to the shape and construction of the escalator, all other space underneath the escalator beyond the 6′ headroom line can be used for selling purposes.

With the new cleat step type of escalator, which is being used universally in department stores, attendants are not required, which reduces the carrying and operating cost considerably.

A bank of six elevators of the large size described above and a group of two foot wide escalators will have a combined carrying capacity, for a ten-story building, as follows:

6 elevators	1,980 persons per hour
1 group of 2′ wide up and down escalators	4,000 persons per hour
	5,980 persons per hour

If we assume that the department store in question should be designed so as to have a traffic density ratio of 1:20 on the upper floors, that is, the vertical transportation equipment should have sufficient carrying capacity to take away from the first floor one person per hour to every 20 square feet of transportation area above the first floor, we obtain the following:

5,980 persons per hour x 20 = 119,600 square feet which can be efficiently served.

1. *Elevators*

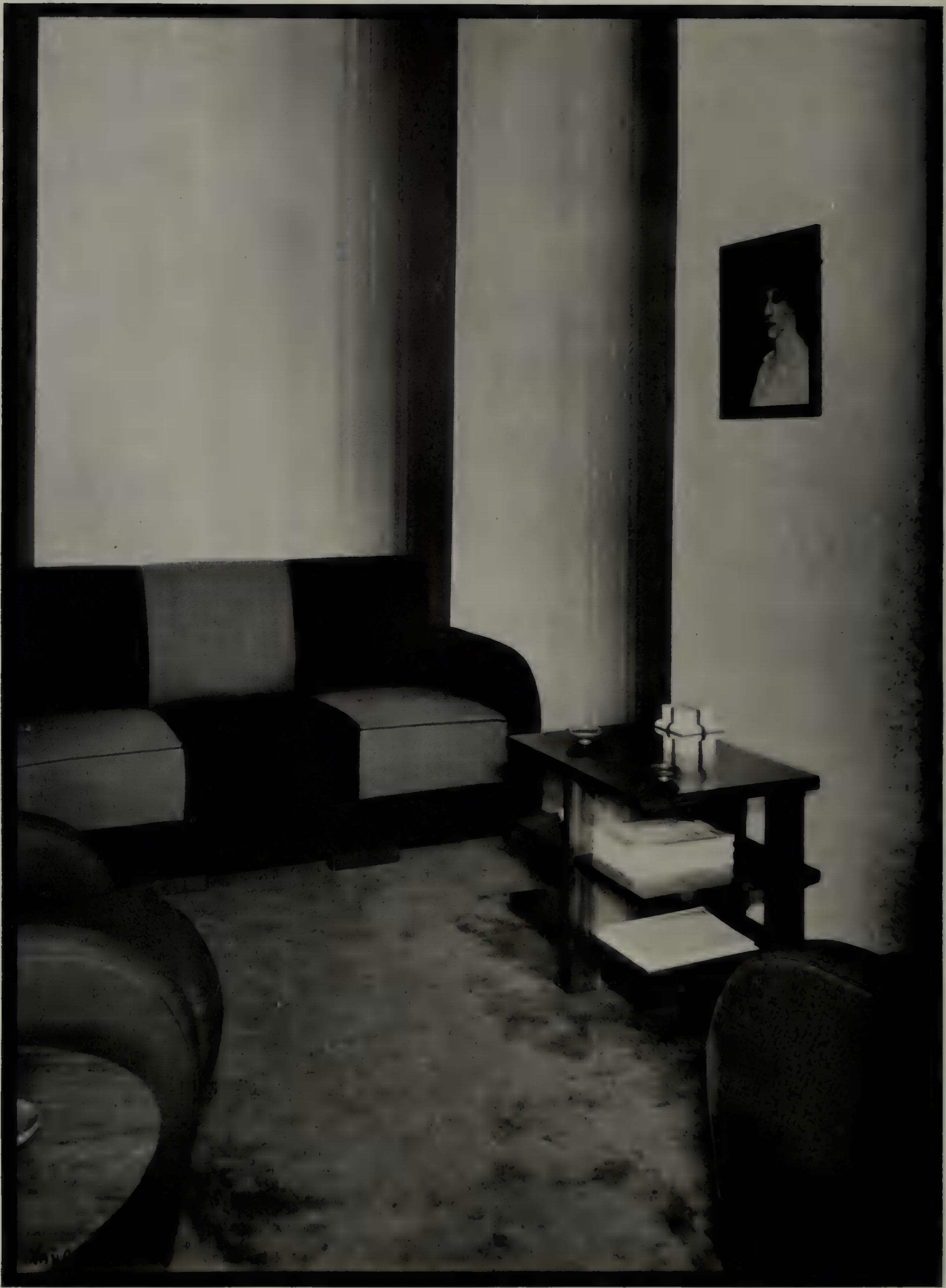
There are certain fundamental principles in regard to elevators which have been well-established.

1. There should not be over six elevators in a bank wherever possible, and seven elevators are to be used only in extreme cases, if they are of small size, in order that the walking distance between the end cars in a group should not be excessive.
2. Isolated elevators should never be installed.
3. Where more than one bank of elevators is used, careful study should be given to their location, in order to insure that each will get a proportionate share of traffic or as near to its proportionate share as possible.

2. *Escalators*

Escalators should be located in the store on the first floor to be in the main artery of traffic, and should be the first choice of the customer entering the building. Their location on the upper floors should be such that they are practically in the center of the building, where only one bank of escalators is used, and if more than one bank is installed they should be so arranged that each serves the proper portion of the building. They should also be arranged so that the up and down service is in the same vicinity and the descending escalator, where it discharges its customers on the first floor, diverts them from the heavy entrance traffic.

(Data on elevators by courtesy of Otis Elevator Company).



Phot., Van Anda

A REMODELED INTERIOR

OFFICE FOR DR. E. KRAUS, NEW YORK CITY

WOLFGANG AND POLA HOFFMAN, ARCHITECTS

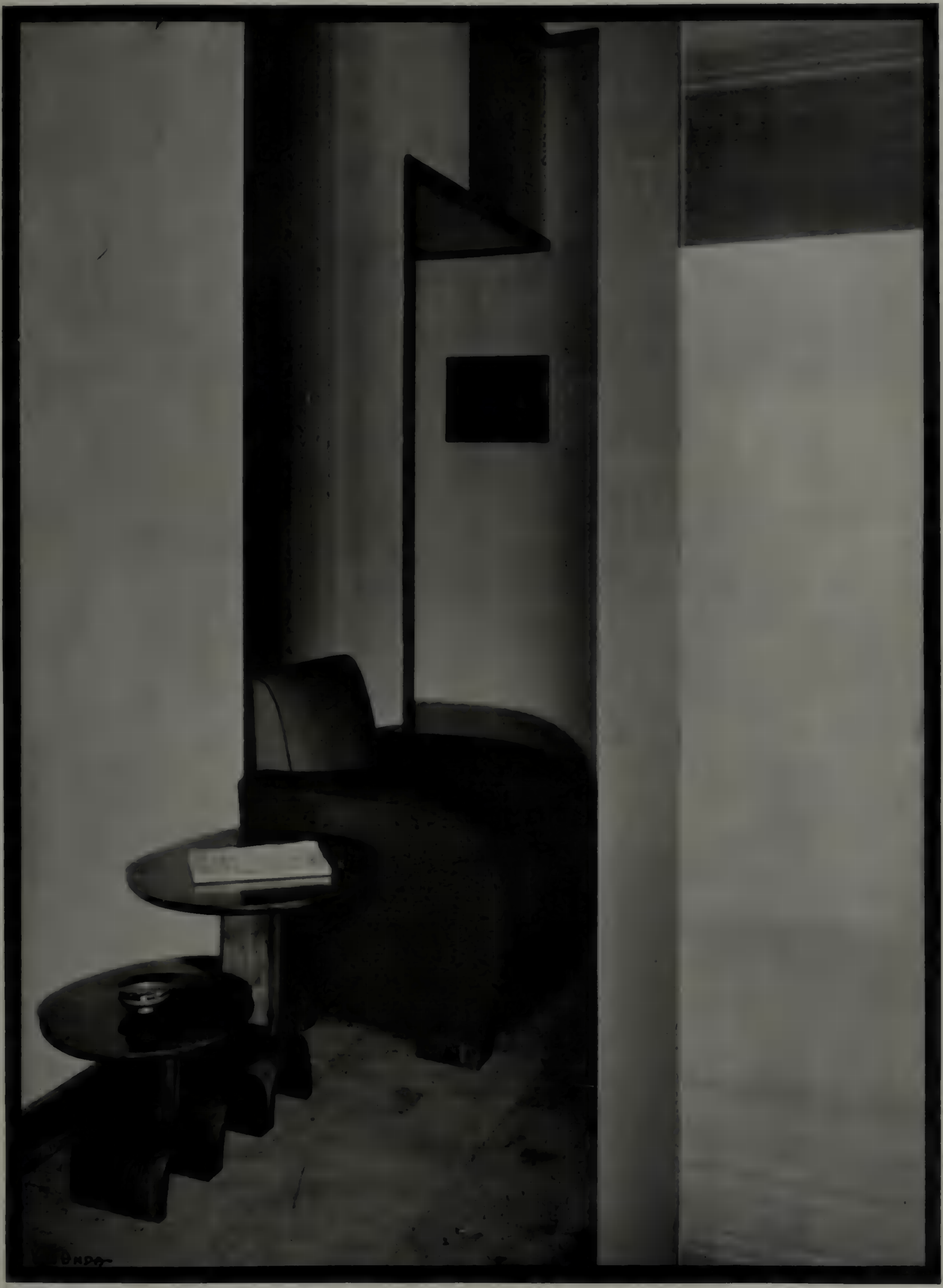
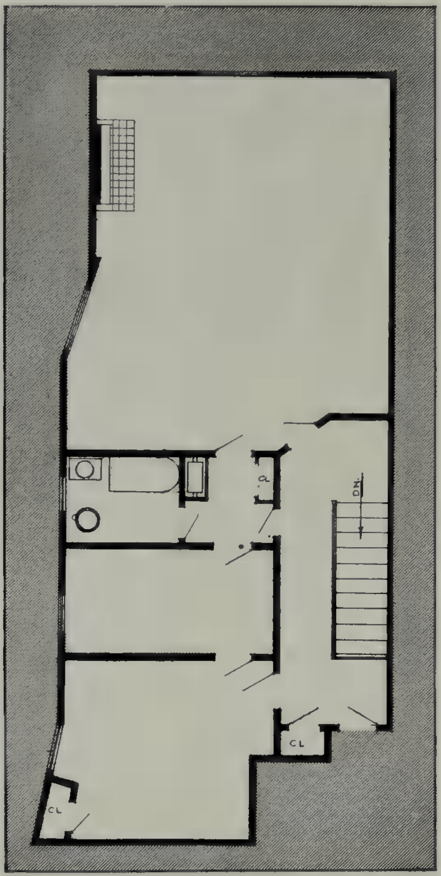
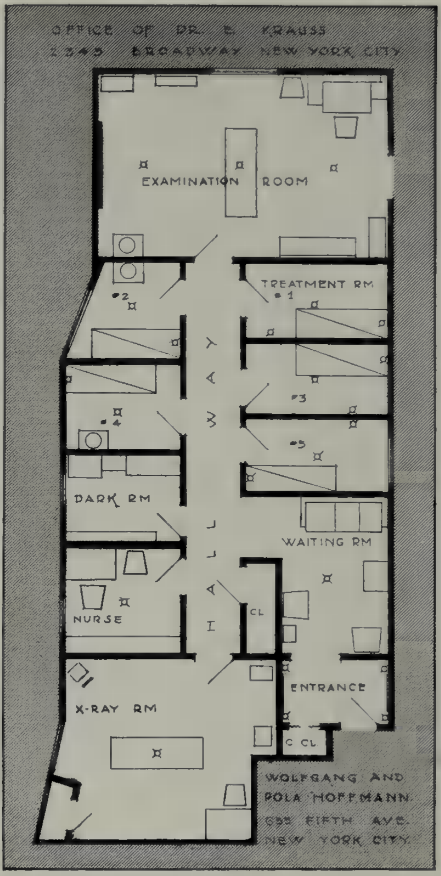


Photo. Van Anda

A REMODELED INTERIOR
OFFICE FOR DR. E. KRAUS, NEW YORK CITY
WOLFGANG AND POLA HOFFMAN, ARCHITECTS



BEFORE ALTERATION



AFTER ALTERATION

A REMODELED INTERIOR

OFFICE FOR DR. E. KRAUS, NEW YORK CITY

WOLFGANG AND POLA HOFFMAN, ARCHITECTS

The pictures of this interior on the preceding pages show what can be done with an unpromising "lay-out"

If conditions do not seem to warrant the installation of an entire new elevator system certain other alterations may nevertheless be considered which will greatly improve the appearance of the building. One of the first steps would probably be the installation of new elevator fronts in the lobby. The cars themselves may be relined with metal or wood veneer. The enclosing of the open cage type of car will help the general appearance of the building interior very considerably, especially since, in addition to giving an impression of modernity in itself, the enclosed car hides from sight the antiquated condition of the elevator shaft.

•

Placing carpets on the floors of elevators helps to tone up their appearance, and eliminates much of the dirt otherwise tracked into halls and offices, with a consequent reduction in sweeping; the carpets can easily be removed for cleaning.

•

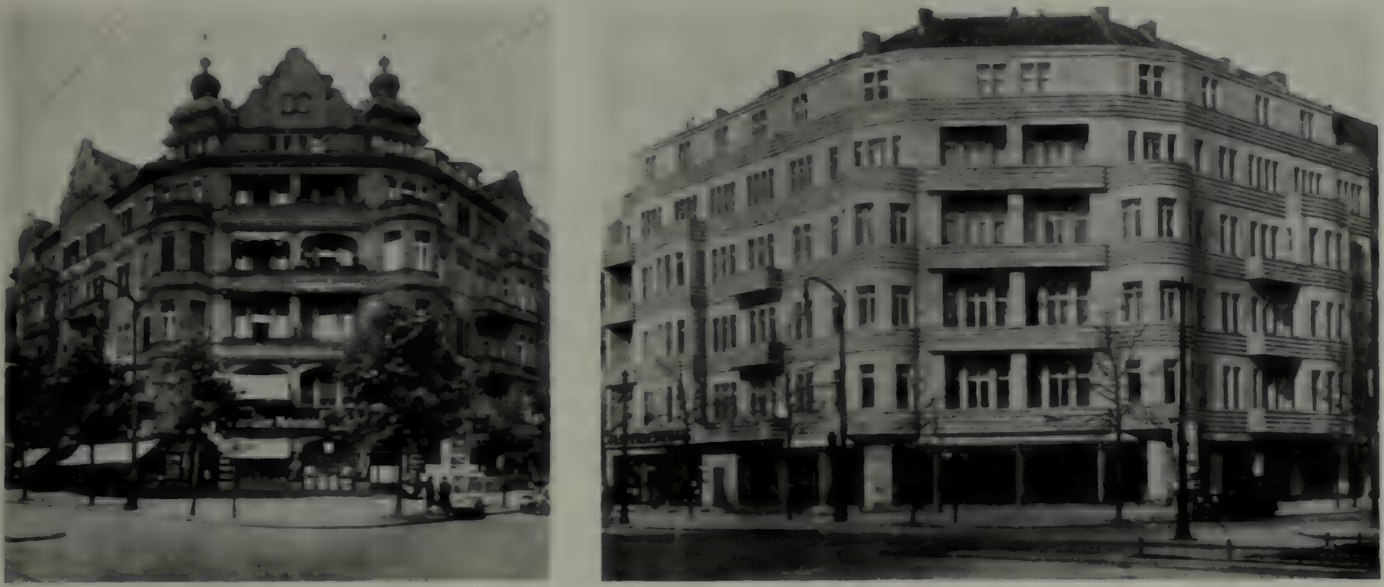
In some old office buildings the existing elevator equipment can handle a greater volume of traffic than any new type that might be installed. This is because the earlier elevators have no interlocking safety doors, which add greatly to the safety of the newer types but slow them up at the stops because the operator cannot open or close the door while the car is in motion. This is not a big factor in some of the higher buildings, however, where long runs make the greater speed of the newer cars more profitable. These points are too technical to be decided without expert advice.

C. GROUND FLOOR ENTRANCE

Next in importance for its effect on possible tenants is the ground floor entrance lobby. Barren, shabby, or outmodishly pompous, it may instantly destroy whatever opportunities the building might otherwise have had to create an expectant and favorable mood. Too little attention is given to modernizing lobbies. A judicious use of new lighting fixtures, some redecoration with paint or possibly with metal and etched glass panels, a stroke on the elevator fronts—and the difference may have been achieved between an unrentable burden and an eligible, rentable building. Just as apartment house owners have discovered that it is their *average* building which requires an elaborate and imposing foyer, while lobbies severely plain are adequate to the most exclusive and high-priced apartment hotel, so the office building owner will do well to put his best efforts into decorative entrances for his older properties.

D. SUBDIVISION OF OFFICE SPACE

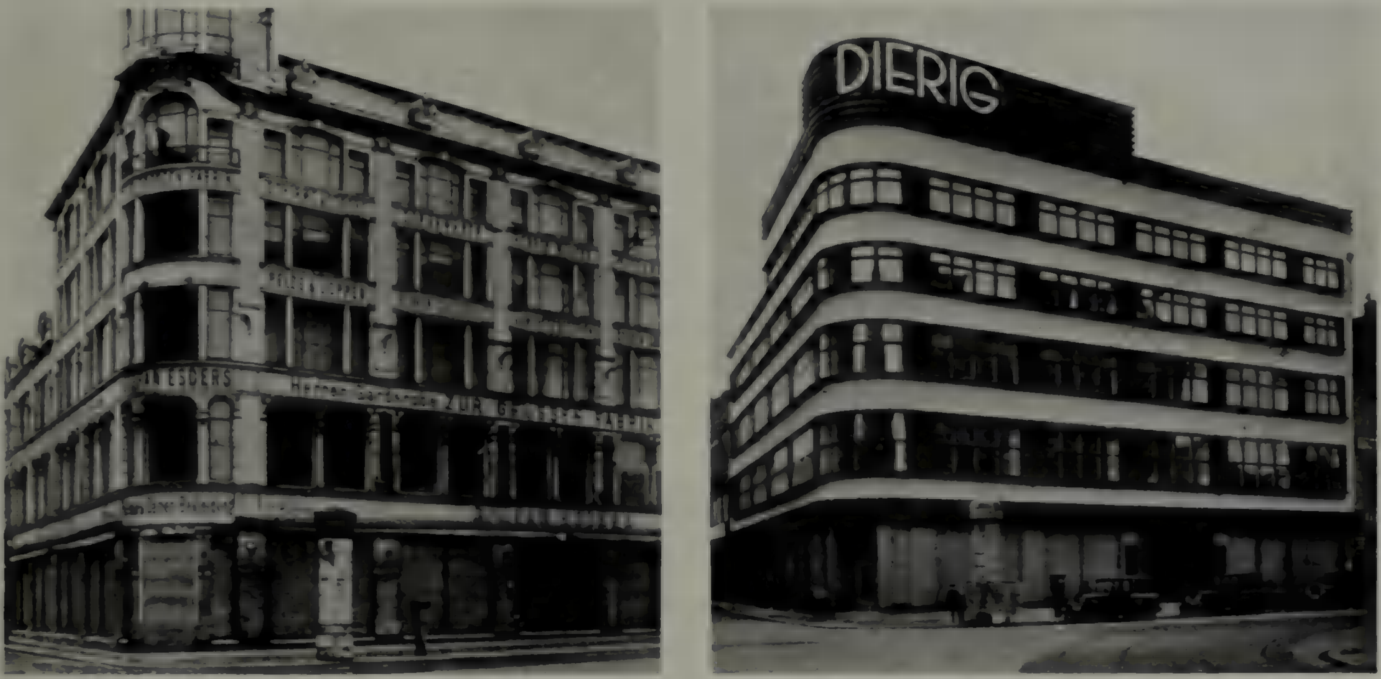
The most desirable size for the average office is obtained with 17'-6'' spacing of columns center to center with a depth of 22' or 24' from face of outer wall to corridor partition. This permits an anteroom and two private offices 8'-4½'' wide by 12' to 14' deep. In remodeling in office building or in subdividing loft space, these dimensions should be kept in mind as an ideal toward which to work.



BEFORE ALTERATION AFTER ALTERATION

APARTMENT HOUSE WITH STORES, BERLIN-CHARLOTTENBURG

J. KOERFER, ARCHITECT



BEFORE ALTERATION AFTER ALTERATION

OFFICE BUILDING, BERLIN

O. R. SALVISBERG, ARCHITECT

These are two stunning examples of what can be accomplished by thorough-going remodeling. In this fashion the City of Berlin is being enthusiastically modernized, without much new building

E. OFFICE PARTITIONS

The National Association of Building Owners and Managers has made a study of the cost of subdividing office space. Table on page 194 shows the method. It was found impossible to estimate the cost of alteration exactly on a unit cost per lineal foot of partition: yet in an average building with mahogany trim, alterations similar to those outlined in the table should be possible at a unit cost per lineal foot of $13.30 (not including overhead).

IV. APARTMENT HOUSES

Remodeling in office buildings is mainly redecorating; in apartments it is replanning, and more specifically subdividing into smaller units. Many apartments of 5 and 7 rooms are being occupied only in part, the rest being sublet by the lessees; a redivision in the floor plan would bring the profit represented by this subletting back to the owner.

Apartments over stores are particularly adapted to subdivision, because people who like to live in central locations want small, compact living quarters. They are not at all attracted by the additional space in large apartments; on the contrary, they will not feel themselves reimbursed even by considerable reduction in the rent for the bother of caring for unnecessary rooms.

An example of remodeling over a store is shown in the accompanying illustration. Here 5-room apartments were subdivided into sets of 2 and 3, with modern kitchenettes, wall beds, linoleum, new lighting fixtures, and so on.

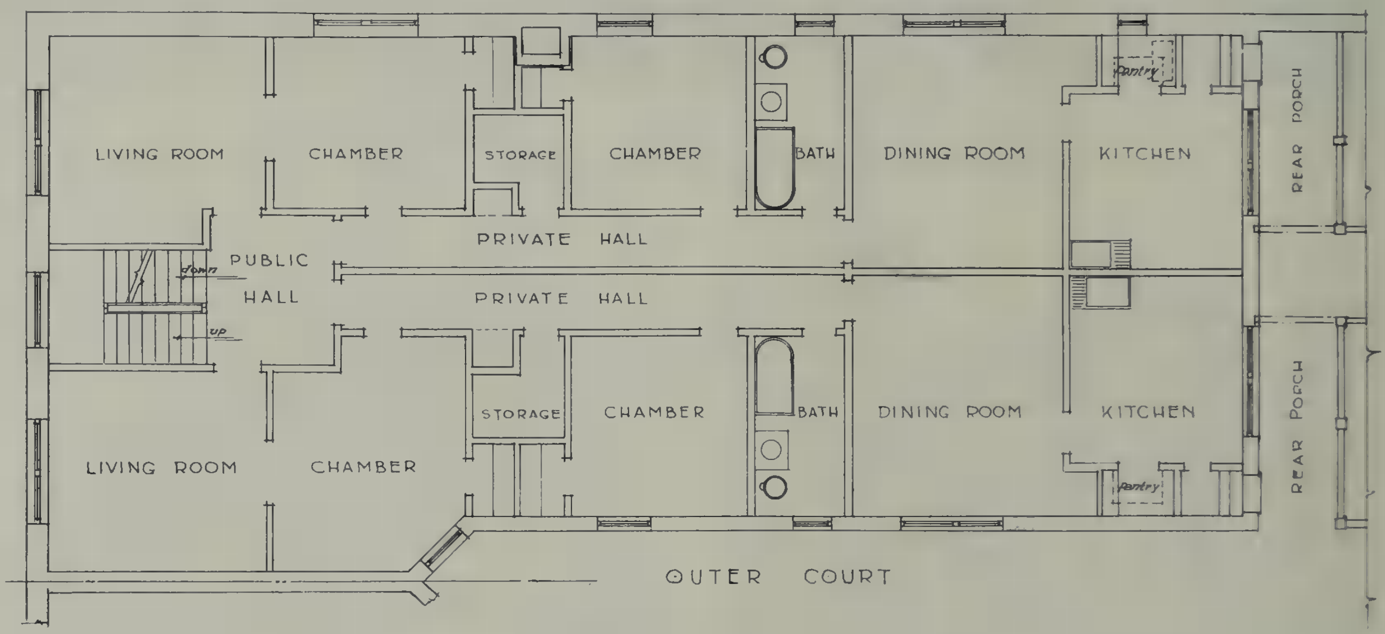
The original income of $7,200 was thus increased to $14,400, and the profit from 6% to 8½% net.

Conversion of single-family to multi-family or commercial use. This offers a very remunerative field for the real estate developer who has old single family residences or row houses which can be remodeled for use by two or more families or converted into office or store use.

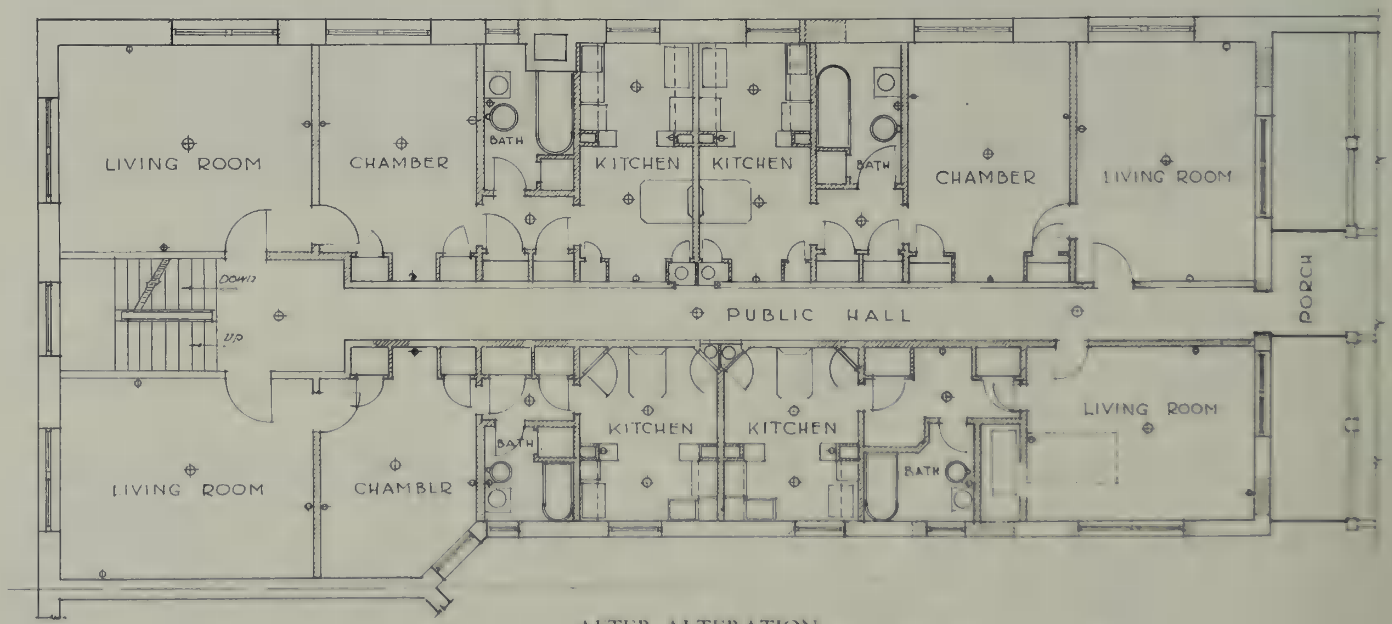
V. PRACTICAL DATA ON REMODELING

A. LIGHT WEIGHT CONSTRUCTION

Light weight floors and the increase of window sizes so as to reduce solid masonry piers will permit the addition of more floors than would the customary methods of construction. See page 195.



BEFORE ALTERATION



AFTER ALTERATION

REMODELING OVER A STORE, DAVENPORT, IOWA

CLAUSEN & CLAUSEN, ARCHITECTS

Before alteration the income was $7,200; after alteration, $14,400. See text above

B. PARTITIONS

1. *Masonry Partitions.* Clay tile and gypsum block are the most extensively used materials, the study by the Buildings Managers indicating that gypsum block is the more extensively used of the two for subdivision. Reasons for the use of the gypsum are that it weighs less than tile, it may be cut with an ordinary hand saw, and is easily chased for conduits; the cost of wrecking is a little less than for clay tile, grounds are easily nailed to gypsum blocks, and if gypsum blocks are dropped on marble, terrazzo or wood floors, they cause less damage than clay tile.

2. *Precaution in Use of Gypsum Block.* Gypsum should not be used in damp basements, since blocks have been known to crumble away. Moisture will rise in gypsum block partitions in damp basements and leave a distinct line of demarkation. If marble wainscot is used in the corridor walls, clay tile walls may be advisable to carry the weight of the marble veneer. Also if basins are to be hung on the wall at some distance from the columns their weight may make it advisable to use the clay tile partition.

The majority of buildings report the unit cost of gypsum block and clay tile as being the same. The average figure for 3″ construction, taken from cost reported by buildings having the work done under one contract, is 47.7 cents per square foot. Where old masonry partitions are to be wrecked an allowance should be made of $2.50 to $3.00 per lineal foot.

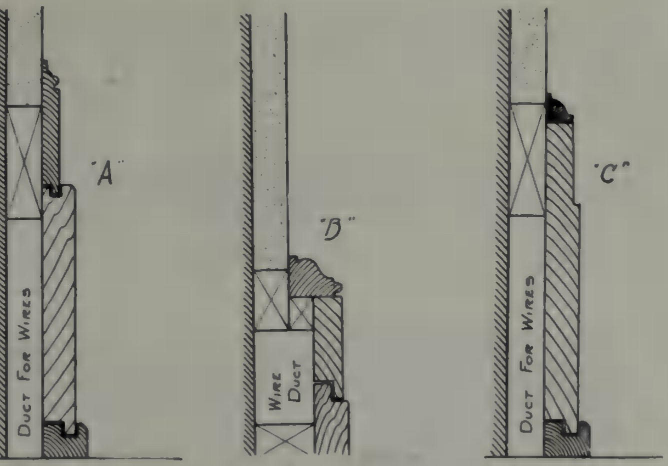
3. *Metal Lath and Plaster Partitions.* 2″ thick solid metal lath and plaster partitions are frequently used in the remodeling and subdivision of office space because they occupy little space. Recent changes in union rules have eliminated some of the difficulties under which this form of construction has labored in the past.

4. *Metal Studding* covered with plastered board is often used in alteration work in old buildings. The cost is estimated at $10 per running foot for the 7′ height and $14 to $16 when carried to the ceiling.

5. *Birch and Glass* is estimated at $13 per lineal foot including doors. This is for ceiling height. Borrowed-light partitions usually vary in cost for the mahogany from $14 to $18 a lineal foot depending on the type of glass and the height of the opening.

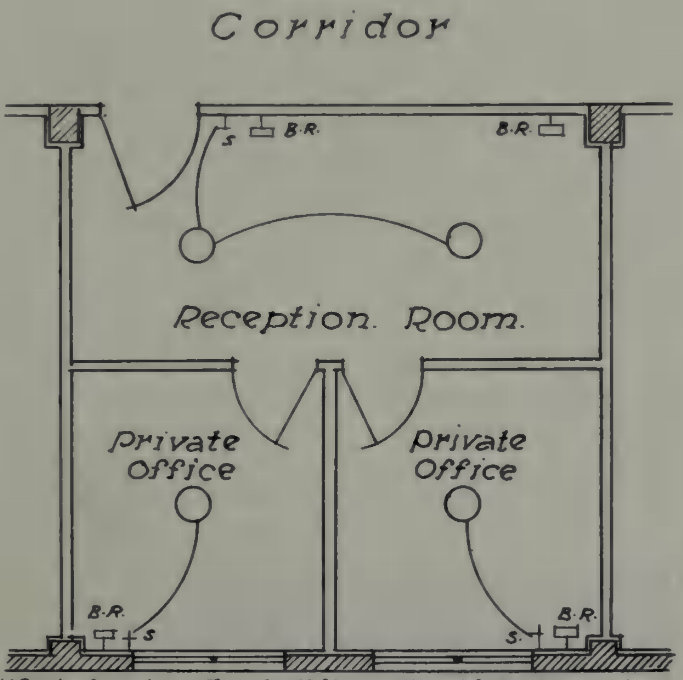
6. *Baseboard.* Metal office partitions and metal baseboards have space for an electric wire duct. Provision for wiring may be made back of a wooden baseboard as indicated in the accompanying sketch. The cost per lineal foot per finished base was found to vary from 21 cents for 2-membered gum to $1.70 for 3-membered imported mahogany.

7. *Chair Rail.* Chair rails are losing favor throughout the country, because they cannot be so placed that protection is afforded to the wall for all the various chair heights. In remodeling it is well to eliminate the chair rail when possible, to get an up-to-date effect.



Where to put wiring ducts in remodeled buildings

8. *Wiring in Office Partitions.* For the sake of alterations the switches in office buildings should be located on outside walls and on interior columns or on the corridor wall. They should not be located on division or subdividing partitions, since any change in these partitions would involve a relocation of all the electrical work. One Chicago building has the switches located on the outside wall as shown below. With this arrangement there are occasional complaints from tenants about having to cross the room in the dark to reach the switch, but since this occurs only when offices are visited at night, the complaints are not many. Base receptacles should always be located just above the base. When located below, the base has to be cut and much of its salvage value is immediately destroyed. Base sockets should be located so as to be under the switch boxes in reception rooms.



"Switches in office buildings should be located on outside walls and on the corridor walls to facilitate alterations"

DATA SHEET ~ ALTERATION COSTS

RESEARCH DEPT. ~ NATIONAL ASS'N BLDG. OWNERS & M'G'R'S

STUDY [redacted] CLASS-BLDG. [redacted] BUILT [redacted]
CONSTRUCTION [redacted]
TENANTRY [redacted]
ANNUAL AMT ALTERATION WORK - $ [redacted]
RATIO - ALTERATION COSTS TO GROSS RENTAL - [redacted]
NET RENTABLE AREA [redacted] CUBE [redacted]

METHOD OF HANDLING ALTERATION WORK:
[redacted]
ROUTINE & PERSONNEL ~ SEE ATTACHED NOTES.

% WORK DONE BY BLDG. ORGANIZATION: [redacted]
EQUIPMENT OF SHOPS ~ EXTENSIVE [redacted] ORD'NY [redacted]
LOCATION OF BLDG. SHOPS ~ [redacted]
NUMBER, CLASS & WAGE OF TRADESMEN EMP'D:

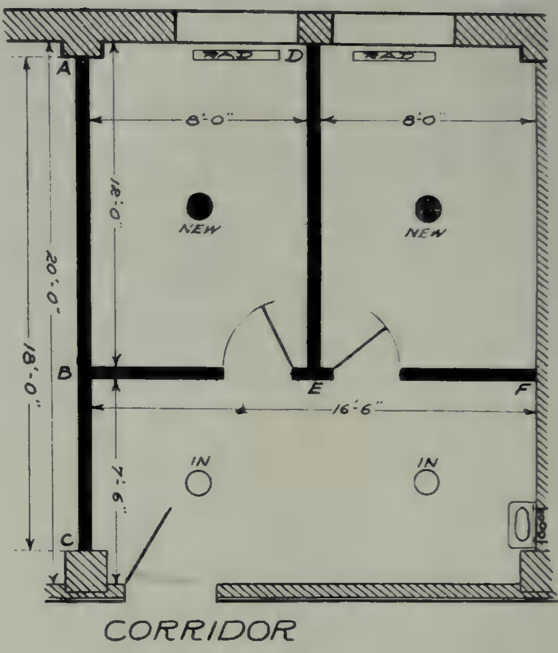
TRADE	NO. EMP'D	CLASS	WAGE	IF CONTRACT ✓
MASON	[redacted]	[redacted]	[redacted]	[redacted]
PLASTERER	[redacted]	[redacted]	[redacted]	[redacted]
LABORER	[redacted]	[redacted]	[redacted]	[redacted]
CARPENTER	[redacted]	[redacted]	[redacted]	[redacted]
PAINTER	[redacted]	[redacted]	[redacted]	[redacted]
ELECTRICIAN	[redacted]	[redacted]	[redacted]	[redacted]
STEAM FITTER	[redacted]	[redacted]	[redacted]	[redacted]
PLUMBER	[redacted]	[redacted]	[redacted]	[redacted]
MARBLE SET'R	[redacted]	[redacted]	[redacted]	[redacted]
TINNER	[redacted]	[redacted]	[redacted]	[redacted]

CONSTRUCTION PRACTICE: [redacted]
FOR WHAT PARTITIONS ARE FLOORS CUT? [redacted]
ARE DOOR BUCKS NAILED TO MASONRY? [redacted]
ARE GROUNDS MORTISED TO DOOR BUCKS? [redacted]
WHAT MORTAR - LIME [redacted] CEMENT [redacted] SPECIAL [redacted]
PLASTER: [redacted] ROUGH COATS: [redacted] FINISH: [redacted]

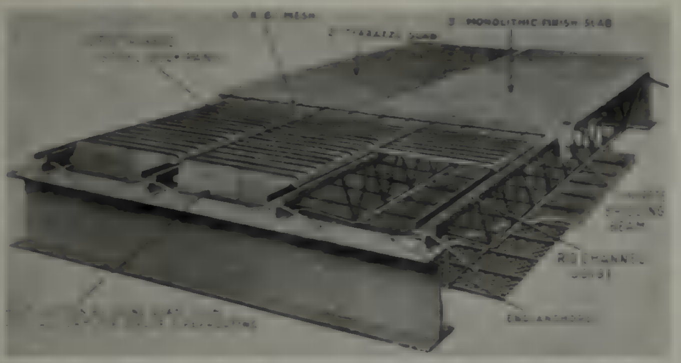
ESTIMATE OF TYPICAL ALTERATION COST:

Consider the work shown on right to be necessary on one of your typical floors - i.e. to divide a two-bay office and subdivide one of the resulting units. Estimate for the type of partition you usually install under such conditions, nothing special considered. The two outlets marked "new" are to be provided, consider feeding from present outlets. Indicate where you would place a base receptacle in each of the small offices, also the switches for ceiling lights. For decorating estimate what you usually find has to be done & list same in space provided at right, area figured as given. The cost of setting the lavatory is to include labor only; consider the fittings and lavatory on hand and the roughing in in place.

Showing an approach to any specific problem of remodeling.



TYPE OF FLOOR: [redacted]
TYPE OF SLAB: [redacted]
CEILING HEIGHT: 10'- [redacted] ANY OTHER: [redacted]
TYPE OF PARTITION "D-E": [redacted]
IF GLASS - SIZE: [redacted] KIND: [redacted]
COST OF ABOVE AMT OF PTN [redacted] 1.
THIS COST INCLUDES: [redacted]
TYPE OF PARTITION "B-F": [redacted]
IF GLASS - SIZE: [redacted] KIND: [redacted]
COST OF ABOVE AMT OF PTN [redacted] 2.
THIS COST INCLUDES: [redacted]
COST OF TWO DOORS - NEW: [redacted] 3.
THIS INCLUDES: [redacted]
TYPE OF PARTITION "A-C": [redacted]
COST OF ABOVE AMT OF IT - [redacted] 4.
THIS COST INCLUDES: [redacted]
TYPE OF LAVATORY USED - [redacted]
COST OF SETTING SAME - [redacted] 5.
COST OF ELECTRIC WORK WITH 2 SWITCHES AND TWO BASE RECEPTACLES: [redacted] 6.
TYPES OF DUCT USED: [redacted]
ITEMS OF TRIM & MATERIAL [redacted]
COST OF TRIM ABOVE: [redacted]
THIS COST FOR: - [redacted]
COST OF PLASTER: [redacted] THICKNESS: [redacted]
COST OF DECORATING PARTITIONS ONLY: [redacted] 7.
THIS COST FOR: [redacted]
TYPE OF HARDWARE: [redacted]
COST OF TREATING NEW FLOOR - [redacted]
THIS INCLUDES - [redacted]
NORMAL TIME NEEDED FOR JOB: [redacted]
COST OF JOB COMPLETE - NO DECORATING BUT FOR NEW PARTITIONS & PATCHING, NOTHING DONE TO FLOOR, NEW DOORS INCLUDED & HUNG, FINAL CLEANING, NO OVERHEAD: [redacted]
WHAT WOULD YOU ESTIMATE THE COST TO BE FOR WRECKING THE PARTITIONS, REMOVING RUBBISH TO BASEMENT FROM 10th FLOOR AND PUTTING THE OFFICE IN SHAPE FOR TENANT - [redacted]
NORMAL TIME NEEDED FOR THIS - [redacted]
SALVAGE: [redacted]



LIGHT-WEIGHT FLOOR CONSTRUCTION
Rivet-Grip Steel Company, Cleveland. Especially applicable to added stories on old frame

C. HEATING

The losses incurred in the operation of antiquated or poorly maintained heating systems are usually accepted as a necessary evil and little thought is given to improving the efficiency and decreasing the cost of heating. Savings of from 25 to 50 per cent in the cost of heating are not exceptional in buildings where the principles of modern practice have been applied and in many of these properties the cost of the improvement has been amortized, through the savings made in heating costs, in two heating seasons. The following tables describe the various types of systems and suggest means for improvement.

Type	Suggested Improvement
(1) *One Pipe System* This system is most inefficient since steam, air and condensate flow in opposite directions. Pressure required to produce complete circulation of steam. Conditions result in underheating or overheating.	Add return line and supply radiator traps and drips; packless radiator valves; vacuum pumps.
(2) *Air Line System* Improvement over one pipe system in that air is removed through thermostatic air valve by use of vacuum pump. Reduces pressure required for complete circulation.	Add return line and supply radiator traps and drips; remove air line valves and piping; packless valves and vacuum pump.
(3) *Two Pipe Gravity* Similar to one pipe system but with a return line for each radiator to carry away condensed steam. Due to absence of trap; steam short circuits radiator and increased pressure is required to maintain complete circulation.	Add radiator traps and drips; packless radiator valves; vacuum pumps.
(4) *Two Pipe Atmospheric* System usually installed with 25 per cent excess radiation and steam enters radiator through slotted or ported valve. Condensation from radiators is restricted mechanically to prevent steam flow in the return line. System is a marked improvement over previous ones but danger of overheating exists.	Improvement depends upon heating requirements of building, and no general recommendations are applicable. Can be accepted as a modern and efficient system.

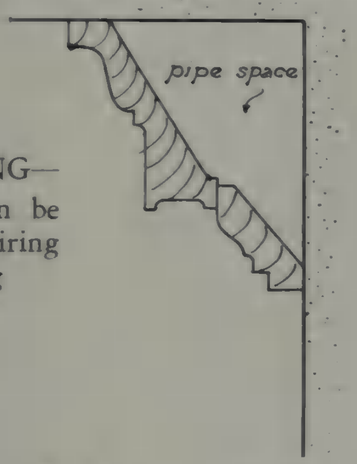
From *Building and Building Management*, August 12, 1929.

Where risers are located at columns and the radiators occur under windows some distance away, it is recommended that the horizontal run from the riser to the radiator be made above the floor, as shown at foot of page rather than beneath the ceiling of the floor below. This is to prevent disturbing one tenant when making alterations for another. Regardless of columns or other projections, piping should be held to the wall line as closely as possible. The drawing shows the wrong and right methods of making horizontal runs. If the pipes are away from the wall they will always be stepped on and leaks result. They also present a hindrance to efficient cleaning and obstruct the placement of furniture.

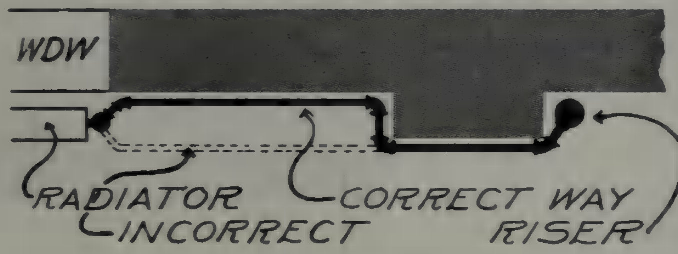
The recommendation that steam risers be run exposed and not furred-in is counter to accepted current practice in architecture but the Building Managers state that the expense and muss of locating leaks in concealed lines counterbalances the objection of tenants to the exposed risers.

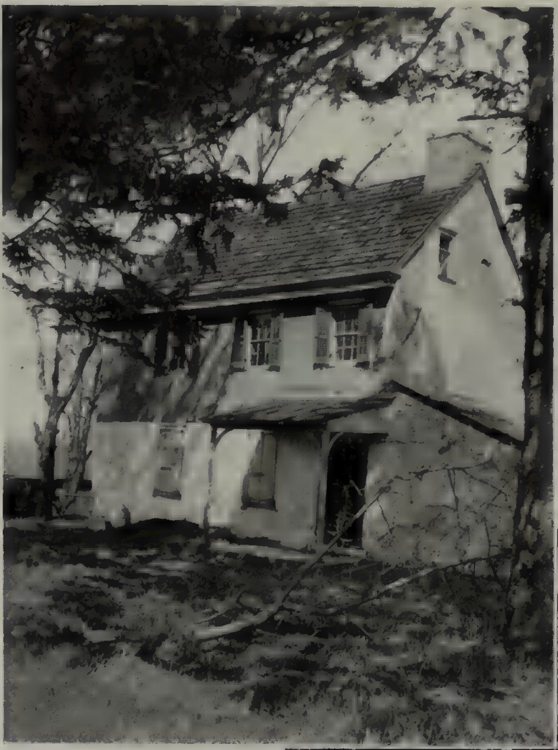
The logical position for radiators is beneath the windows. This gives the wall space for placement of furniture and overcomes the cold area otherwise found in front of windows. In this connection, several buildings have used an insulation of some type, such as a prepared sheet of Insulite or Celotex behind the radiators to prevent the rapid transmission of heat through outside walls. This practice should warrant consideration since the coldest portion of the building is immediately next to the source of heat if the radiators are placed beneath the windows. Ultimately under these conditions the insulation will be incorporated within the wall construction.

IN REMODELING—
Cornice space can be utilized for wiring and plumbing

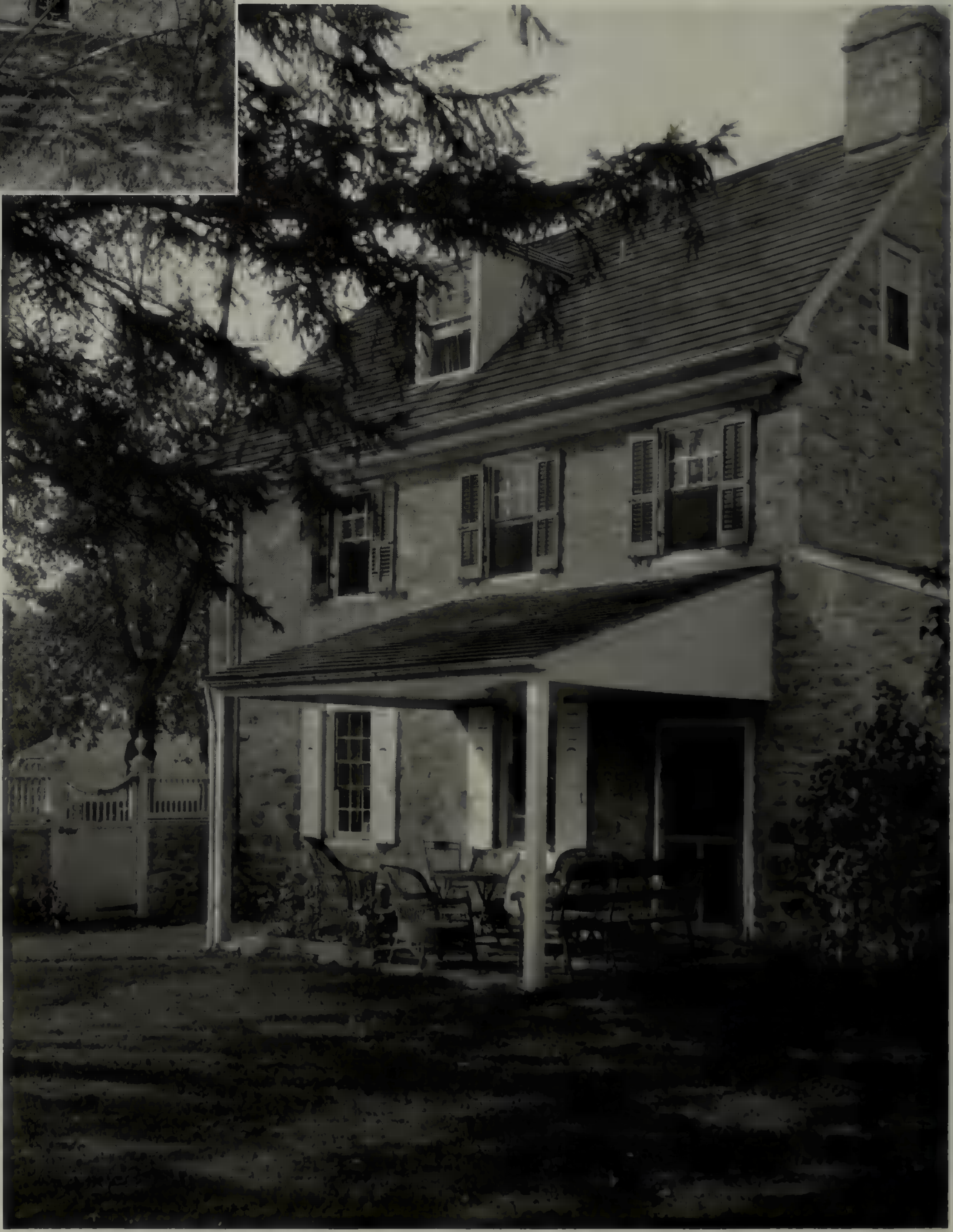


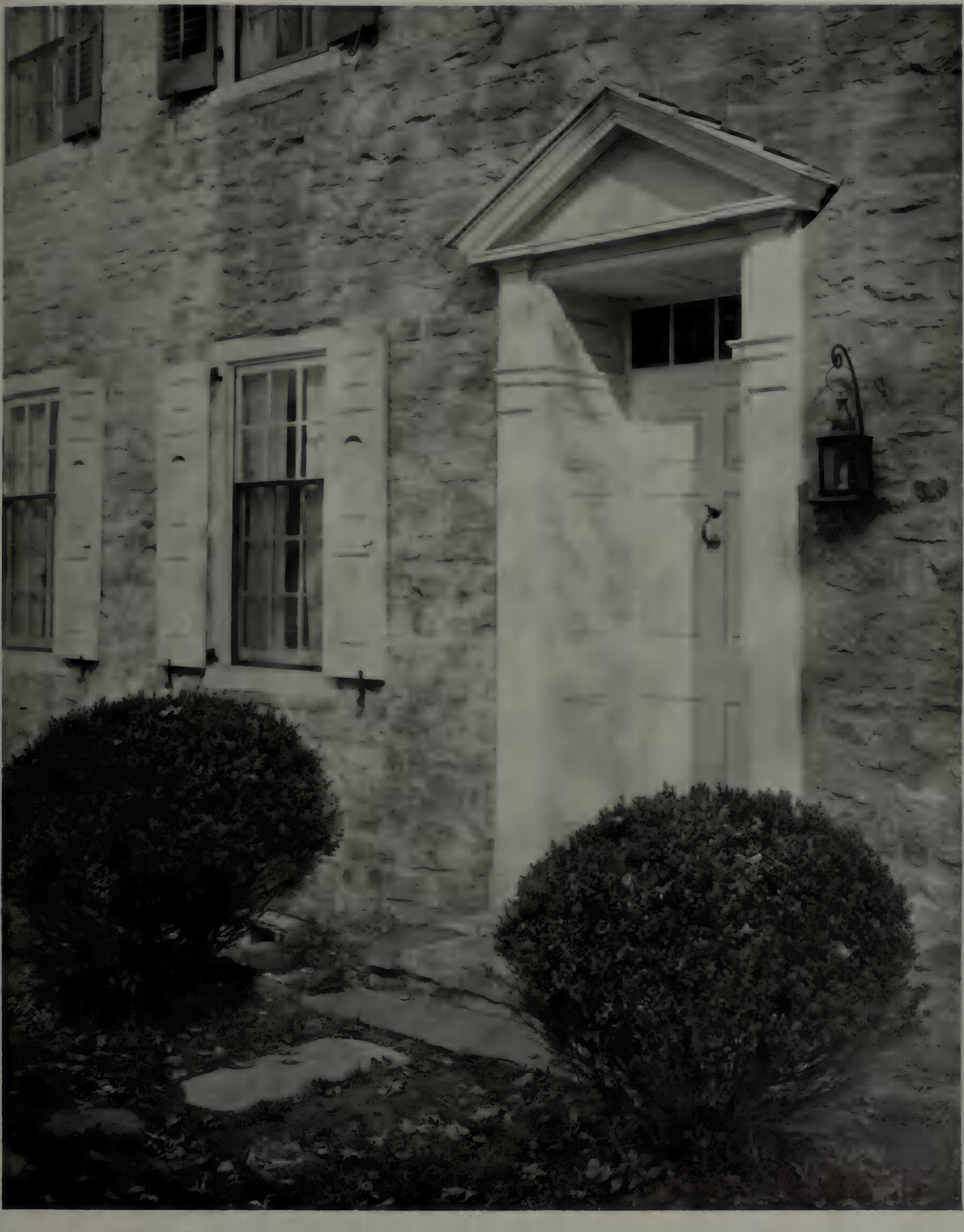
1. *Radiators.* Hangers have now been perfected to the point where little trouble is experienced from them. With the wall-hung installation, it is easier to clean the space beneath the radiator. The trouble occasioned by laying carpets under the pedestal type





HOUSE FOR MRS. HENRY B. BARTOW
Fort Washington, Pennsylvania
REMODELED BY G. EDWIN BRUMBAUGH,
ARCHITECT





HOUSE FOR MRS. HENRY B. BARTOW, FORT WASHINGTON, PENNSYLVANIA
REMODELED BY G. EDWIN BRUMBAUGH, ARCHITECT

PRESENT STANDARDS OF FOOT-CANDLES OF ILLUMINATION FOR COMMERCIAL INTERIORS

	Foot-Candles Recommended	
	Good Practice	Minimum
Auditoriums	5	3
Automobile Show Rooms	15	10
Bank, Lobby	10	6
Cages and Offices	15	10
Barber Shop	15	10
Club Rooms, Lounge	5	3
Reading Room	12	8
Dental Offices, Waiting Room	6	4
Operating Room	12	8
Dental Chair	50	25
Drafting Room	25	15
Elevators	6	4
Garage, Storage—Dead	3	2
Storage—Live	8	5
Repair and Washing	15	10
Halls, passageways in interiors	3	2
Hotels, Lobby	8	5
Dining Room	6	4
Bedrooms	8	5
Corridors	3	2
Writing Room	12	8
Library, Reading Room	12	8
Stack Room	6	4
Lunch Room	12	8
Market	12	8
Office Building—Private and General Offices		
Close work	15	10
No close work	10	8
File Room	6	4
Vault	6	4
Reception Room	6	4
Show Cases	Two to four times that of store proper	
Show Windows—*Large Cities:*		
Brightly Lighted District	150	100
Secondary Business Locations	75	50
Neighborhood Stores	50	30
Medium Cities:		
Brightly Lighted District	75	50
Neighborhood Stores	50	30
Small Cities and Towns:		
Lighting to reduce daylight window reflections	200–1000	
Stores—Department and Large Specialty:		
Main Floors	15	10
Other Floors	12	8
Basement Stores	15	10
Stores—Medium Size:		
Automobile Supply	12	8
Bake Shop	12	8
Book	12	8
China	12	8
Cigar	15	10
Clothing	15	10
Confectionery	12	8
Dairy Products	12	8
Drug	15	10
Dry Goods	15	10
Electrical Supply	15	10
Florist	12	8
Furrier	15	10
Grocery	12	8
Haberdashery	15	10
Hardware	12	8
Jewelry	15	10
Leather, Handbags and Trunks	12	8
Meat	12	8
Millinery	15	10
Music	12	8
Notions	12	8
Piano	12	8
Shoe	15	10
Sporting Goods	12	8
Tobacco	15	10
Toilet and Washrooms	6	4

radiators, where pipe connections have to be changed is also obviated.

The height of a radiator from the floor should be approximately five inches. This allows brushes and vacuum cleaner tools to pass beneath and gives sufficient height for all gravity drainage required. With greater clearance than this above the floor there is the probability of forcing the top of the radiator above the height of the window stool.

2. *Plumbing.* Lavatories should be as small as possible. Square fixtures 18 x 24 are considered practicable. When large lavatories in old buildings are located in cabinets they may be supported on grounds nailed to the side cabinet panels, but for ordinary locations the combined pedestal and wall-hung fixture is recommended as tenants occasionally sit on the bowl and may break the old type loose from the wall.

Self-closing faucets are recommended. Many operators advocate china handles on faucets both as a protection against their becoming hot and to minimize all polishing and metal maintenance.

The pop-up waste is generally found the most satisfactory. It is more up-to-date and is not subject to being lost as are rubber stoppers even when chained to the fixture.

White metal has been found very satisfactory for plumbing fixtures, since it requires no polishing. New finishes are also available such as chromium plate. These innovations have been found to be entirely practical.*

Flexible Copper Water Tubing† will be found a great help in remodeling work since this pipe, which comes in 60′ coils, can be run around corners and down through partitions like electric cable. It can be bent to a radius of 4″ and larger without kinking. This tubing is joined together with a special form of compression joint which has been used in Europe for some time and is employed in this country on oil and gasoline lines in automobiles.

D. IMPROVING THE ELECTRIC LIGHTING EQUIPMENT

The advance in the art of lighting is so constant that *it is seldom good practice to maintain any type of lighting fixture for a period longer than five or six years.* We have progressed in the accepted standards of proper lighting conditions and a fastidious tenancy demands increased quantities of light of improved quality. Lighting units designed on the principle of semi-indirect illumination appear to be the most satisfactory for office use. Within the past ten years, we have increased our requirements for office lighting from 5 foot-candles to a present-day demand of 10 foot-candles for general work and higher intensities for drafting rooms and doctors' offices.

1. *Modern Illuminating Standards.* Without attempting to recommend any specific make of lighting

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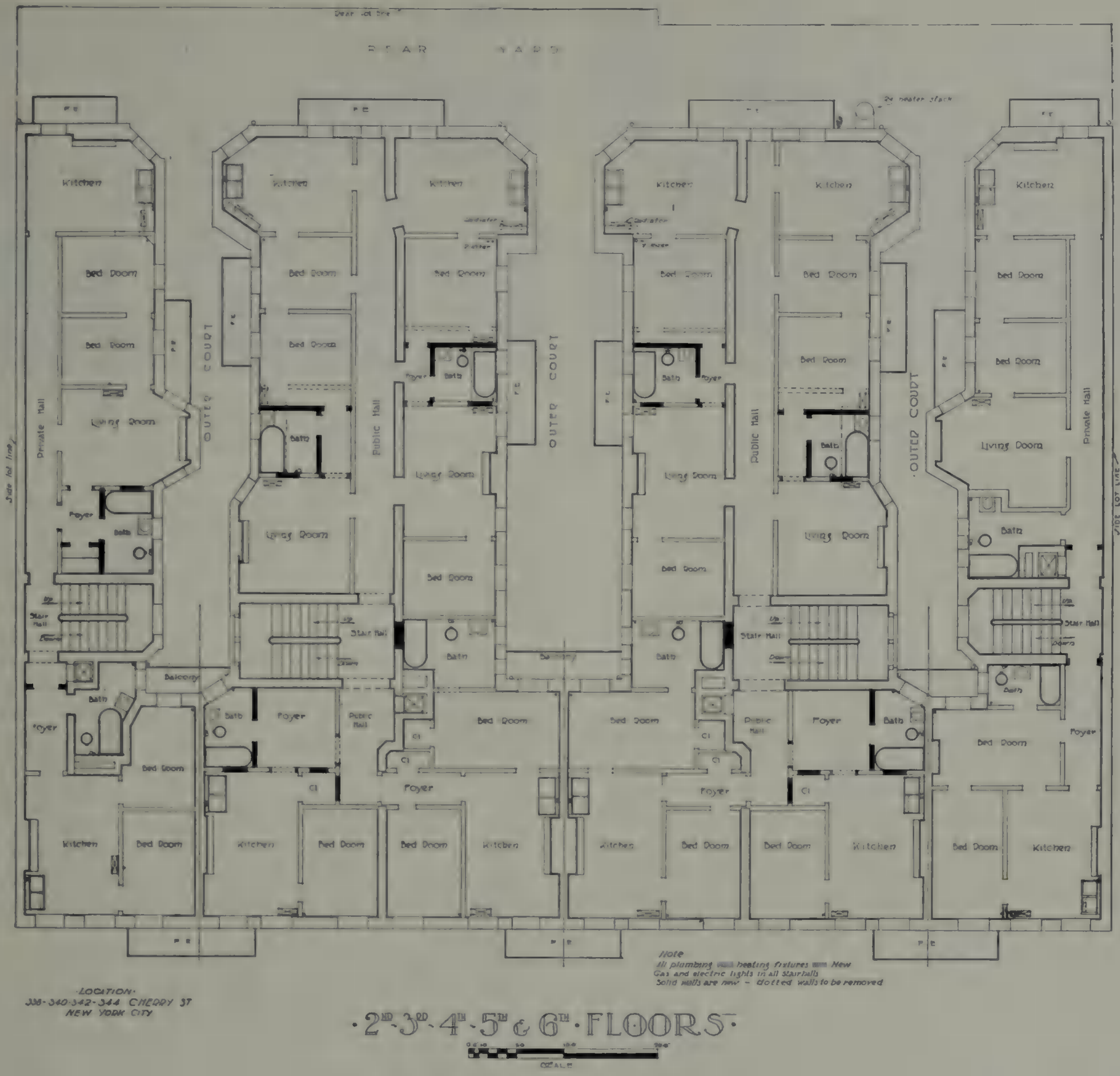
* Office Building Alterations, National Association of Building Owners and Managers.

† Sweet's Architectural Catalogues, page 4106.



REAR YARD
Kitchen
Bed Room
Living Room
Private Hall
Public Hall
OUTER COURT
Bath
Foyer
Stair Hall
Balcony
Cl
F.E.
Side lot line
Note
All plumbing and heating fixtures are New
Gas and electric lights in all Stairhalls
Solid walls are new — dotted walls to be removed
·LOCATION·
338-340-342-344 CHERRY ST
NEW YORK CITY
·2ND-3RD-4TH-5TH & 6TH·FLOORS·
SCALE

REMODELED SLUM, NEW YORK CITY

MAXWELL HYDE, ARCHITECT

The original building was poor in plan with air-shafts 60′ deep and 10′ to 12′ wide. Remodeling entailed the removal of unnecessary fire escapes in the air-shafts which interfered with light and ventilation. Light court walls were whitewashed and front repainted. There were practically no structural changes except moving of partitions to form new bathrooms as indicated by solid blacks.

Originally, the buildings contained 275 rooms; as altered they now have 236 rooms and 72 baths; 24 rooms have been increased in size. When taken over by the present owner, the average rent was $4 per room per month. The new schedule calls for a minimum of $7 and a maximum of $12. The total amount of rent that was being received was $2,100; the new rent roll is $26,000. The land and buildings cost $55,000. The alterations, including fees to the architects and builder's profit, cost $85,000—about $320 per room. The running expense, it is estimated, will be about $10,000 a year. The operation after an amortization of 4% has been deducted will show a profit of 6% or possibly 7%.

unit, we may say that the most satisfactory one for offices is of the semi-indirect type which sends the greater part of the light to the ceiling whence it is reflected back to the surfaces of the desks. An ideal unit would have a light output equal to 75% of the output of the bare lamp; and of this amount, 15% would be distributed downward from the fixture and the balance reflected downward from the ceiling in well-distributed illumination.

2. *Switch Plates.* Heretofore, one of the greatest problems in the maintenance of offices has been the brass switch plate. As soon as it has shown signs of tarnish, the cleaning force attempts to polish it in place with the result that the walls are badly marred and stained. By using Bakelite or other composition or enameled switch plate the maintenance is very materially reduced and requires nothing more than an occasional dusting off to maintain an attractive surface. These plates can be obtained in any color to match the office trim or furnishings.

E. SOUND ABSORPTION AND ACOUSTICAL TREATMENT

In remodeling and modernizing buildings it is well to bear in mind the possibilities of sound-deadening or acoustical treatment. Where a ceiling has to be refinished or where in old buildings high ceilings have to be lowered to obtain pleasing proportions one of the various sound absorption materials may often be used to advantage.

Some apartments, difficult to rent due to noise from neighbors, may be made rentable by the addition of a sound-proofing system to walls and floors.

Sound Filters on Windows. Some offices and apartments are difficult to rent due to railroad or street noises. Unit ventilators with sound filters will largely overcome this difficulty.

F. WOOD FLOORS

In present day operation, floors do not present the problem they did ten years ago as the general tendency is to cover all floors with linoleum, cork tile or carpet. Where floors require refinishing, and floor covering is not used, it is necessary to remove the finish with a sanding machine, and prepare the surface for subsequent treatment. New or thoroughly sanded floors of oak, maple and yellow pine can be refinished in any of the modern finishes at moderate costs. *Plain varnished floors are not serviceable and the trend is toward oiled and waxed finishes.* A treatment which has been evolved for new or recut floors of maple and oak is obtained by deep-staining the wood with water-soluble vegetable stains, instead of the usual oil stains. When this stain has thoroughly dried, the surface is given a coat of orange shellac. After drying, the floor is given a light sanding by hand and the final finish obtained by waxing with a preparation of Carnuba wax and linseed oil, using a polishing machine having a felt pad for rubbing in the wax preparation. This method is not only less expensive than varnishing, but produces a surface which is attractive, is easily cleaned, and can be refinished by applying a wax coat.

G. DECORATION AND PAINTING

In no aspect of building operation is there a better opportunity to satisfy the tastes of discriminating tenants than in the artistic treatment of office units. New and pleasing effects unquestionably render the space more inviting to the prospective tenant than customary standard colors and treatments. In a recent study the psychology of color has been most thoroughly analyzed and what may be termed the "therapeutic value" of color established. The fact that various colors have been classified as having pronounced stimulative, recuperative or sedative effects, have caused hospitals to vary their color schemes from the long established and distressing white. The depressing effect which some of our decorative effects must have on our tenants cannot be wondered at after one has observed some of the treatments of office space that have been applied with no thought of artistic blending or contrasting of harmonious colors.

In any interior rehabilitation program, it is the decorative effort that usually produces the greatest volume of comment from the public since it is the most striking visual evidence of improvement. We sometimes fail to capitalize this fact to the fullest. The modernistic trend of decorations suitable for office buildings should not be confused with the ultra-modernistic creations which one encounters in tea rooms; those extremes are solely for the purpose of attracting attention, whereas in office areas we should tend toward a duplication of the subdued effects of home environment.

Our efforts in office decoration should not be judged alone from their psychological effect as they have a very definite economic value in the reflection of light from wall and ceiling surfaces.

The coloring effects used in offices determine what efficiency can be obtained in the quantity and quality of light reflected from the painted surfaces. The following chart illustrates the reflection value of various colors and indicates the shading which should be utilized to maintain efficient lighting conditions in offices:

REFLECTION VALUE OF VARIOUS PAINT COLORS

Color	Reflection Factor, Per Cent	Color	Reflection Factor, Per Cent
Paper white	80	Shell pink	49
Ivory white	78	Bright sage green	48
Pearl gray	74	Buff stone	42
Caen stone	73	Dark gray	39
Ivory	71	French gray	38
Lichen gray	69	Pale azure	38
Light gray	67	Tan, dark	35
Ivory tan	64	Sky blue	35
Satin green	61	Olive green	20
Silver gray	57	Cardinal red	18
Buff	54	Forest green	18
Pale azure and white	53	Dark blue-gray	17

From *Buildings and Building Management.*

BEFORE REMODELING AFTER REMODELING

TRUE TEMPER INN, WALLINGFORD, VT.

C. B. ROWLEY, ARCHITECT

Aluminum paint can often be used to advantage in remodeling work. This paint is made from ground aluminum foil suspended in a medium. After application, a thin coating of aluminum similar to "silver leaf" is formed which has a high degree of light reflection, for light wells, courts or interior work.

1. *Plastic Finishes.* The possibilities which plastic paint has opened up for those who desire unique and interesting decorative effects have brought about an increasing use of this material in office buildings. It is an outgrowth of the days of rough or sanded plaster, but has the advantage of being more easily applied and produces a more pleasing texture. The basic materials are of two types: One, a powder for admixture with water and the other, one in which white lead paste predominates. The latter material is mixed with whiting and oil to produce the plastic compound and is principally used where the desired texture is one in which the relief is not extreme. In work which demands high relief, like Spanish plaster, the water preparation is best.

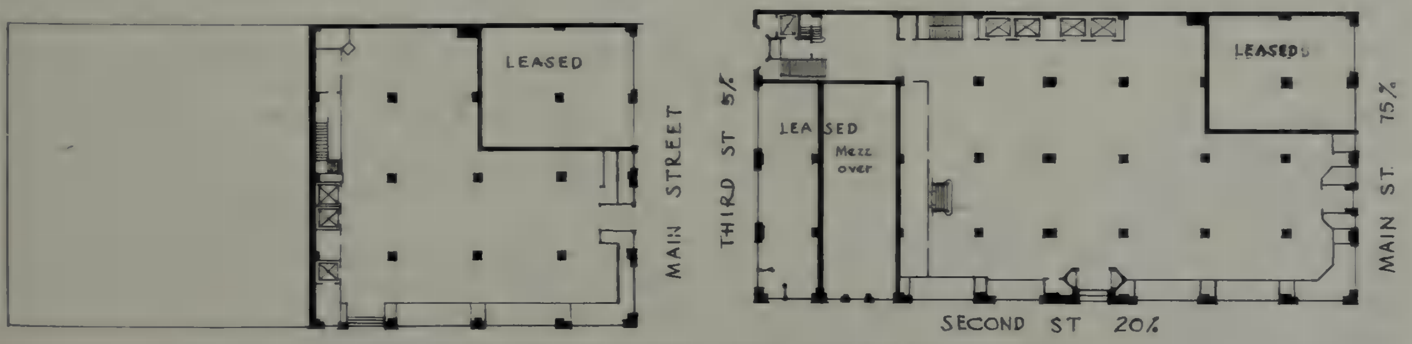
Plastic finishes are particularly adaptable in old buildings where, as a result of the accumulation of numerous coats of paint or faulty finish coats, the material flakes off, leaving a surface which cannot be satisfactorily covered by paint. Defective walls of this type can be coated with plastic paint.

VI. BUILDING PLANNING SERVICE

Most architects on large building projects now call in the aid of structural, heating, ventilating and electrical engineers. Increasingly, it has been found advantageous to the architect to also avail himself of the advisory services of building managers. The National Association of Building Owners and Managers with its experience in operation and management of buildings can aid in the practical solution of plan arrangement, equipment and in the selection of suitable materials. The association experts can render service in the remodeling or operation "set-up" that is compiled under the immediate direction of the architect. Room sizes suitable for advantageous rental, and the possibilities for alteration from the viewpoint of future sale or lease can be arrived at with reasonable exactness with their cooperation. The services of this Association are available at a nominal fee that varies with the cubic contents of the building on which advice is sought.

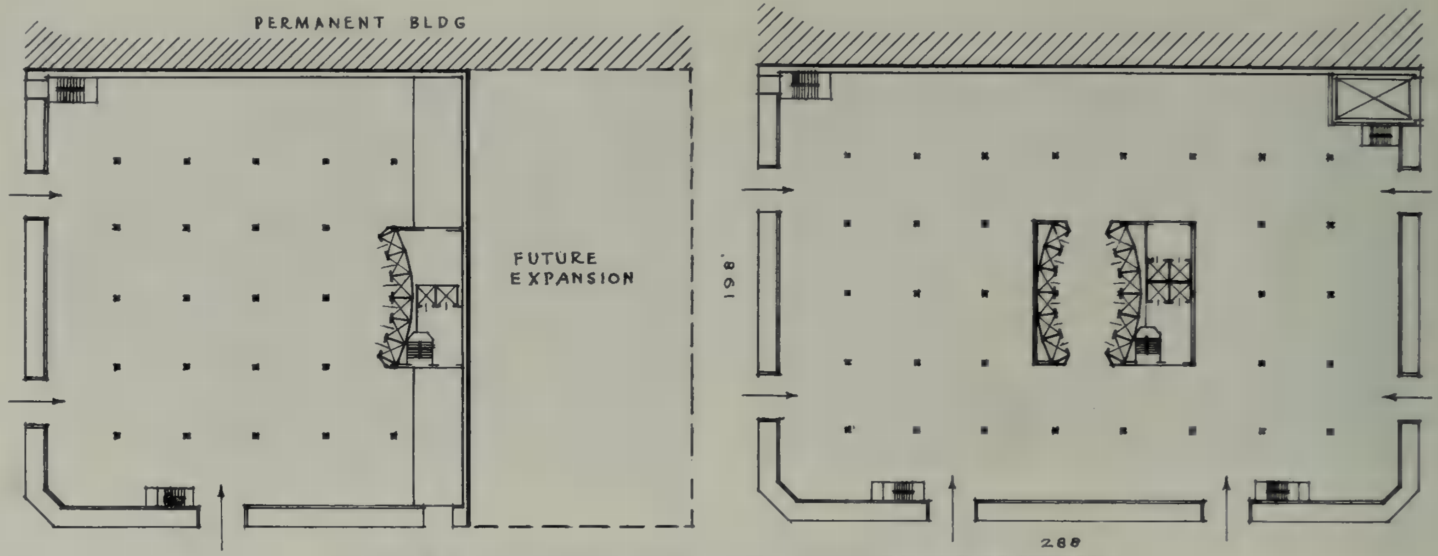
A survey made by the architect to indicate the advisability of remodeling or of rebuilding should accompany preliminary sketches and every available source of data should be used by the architect.

Real estate boards, the Department of Commerce and Chambers of Commerce can also be of assistance in determining site and character of building.



PART OF STORE SUB-LEASED UNTIL FUTURE EXPANSION

(See Article on next page)



A STORE PLANNED FOR HORIZONTAL EXPANSION

The left shows the present condition, the right the future. A centralized grouping gives excellent distribution, and is suited to set-back design. This plan is for a store expanding from a volume of four million to ten

PLANNING FUTURE EXPANSION FOR THE DEPARTMENT STORE

BY KENNETH WELCH

Vice-President in Charge of Design, Grand Rapids Store Equipment Corporation

The successful department store has never existed that did not, at some time, become congested and need additional area to permit an increase in volume. It is well known that as the volume of a store increases the percentage of profit and the productivity increases per square foot. Accordingly, it is important that the department store should have at all times the maximum amount of space that it can economically use.

On the other hand, it is very desirable to consider carefully the immediate space requirements and not to provide at any one time for too great a future expansion. Besides demanding an additional initial investment which remains dormant, such practice always results in additional operating expenses. Sometimes a combination of these two costs proves disastrous.

The question we are discussing is, what means can be provided for additional expansion in the future when designing an *entirely new building*.

The exact amount of expansion to provide for is sometimes difficult to determine but the following conditions should be carefully studied. The increase in business that a retail store can expect depends primarily on: (1) the growth and prosperity of the vicinity, (2) the success of the future management, (3) what percentage of the business in its line the store is doing, (4) the competition that is still to be established, and (5) the location of the store.

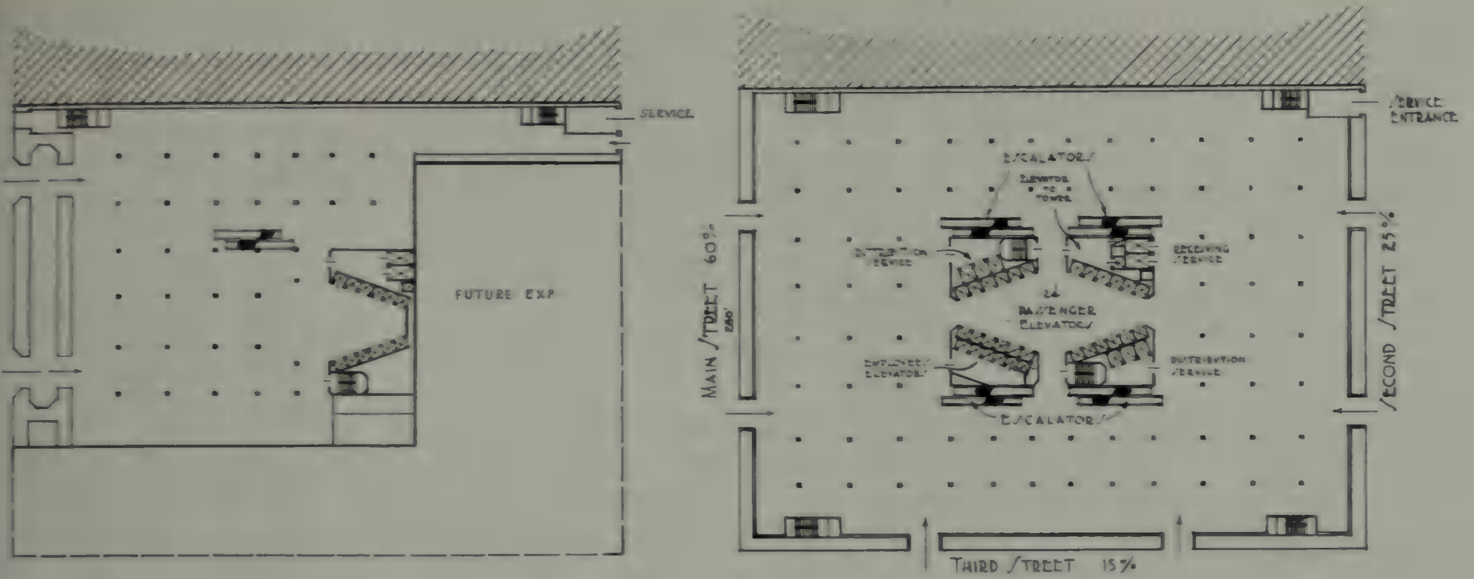
Valuable figures can be obtained from the local Chamber of Commerce and the Federal Reserve reports, and information can also be had from the U. S. Department of Commerce, to help determine the future market possibilities and growth of the vicinity.

If the management is successful and is not now getting its share of business, the assumption is that with the stimulus of a new building the growth of the store will be proportionately greater than that of the community.

The extent of future competition is difficult to foresee but it is almost certain that if the vicinity is having a decided growth, competition will be established and will absorb a part of the additional business.

In regard to the location of the property, if there is a decided tendency for the retail district to keep shifting as it does in many cities, the wisdom of making too great an initial investment in provision for future expansion is dubious. If the vicinity has permanent transportation terminals, or other permanently established stores with fairly modern buildings tending to stabilize the location for shopping purposes, it is well to look as far into the future as possible, and provide every means within reason for logical future addition of space. It would be a mistake, however, to make any considerable additional investment in footings and extra structural work without a practical merchandising scheme for eventually using these facilities to their maximum.

In the plan the proper spacing of columns, location and schemes of display windows, entrances, etc., do not present a difficult problem. The greatest difficulty is to provide for the additional interfloor trans-



A STORE PLANNED FOR HORIZONTAL EXPANSION

Elevators should be planned centrally to the upper floors, the volume of business above the main floor exceeding the relative volume of traffic. The left shows the present condition, the right an expansion to one hundred million volume

portation. The importance of this can best be emphasized by the following facts: In the average department store from 35% to as high as 65% of all the people who enter the store go to an upper floor. The percentage of *volume* done above the main floor always *exceeds* this percentage of traffic. For example, if 65% of the persons that enter go above the first floor, it is possible that 75% of the volume will be done above the first floor.

Considering these facts, as well as the operating expense, and the inconvenience to the customers that can be occasioned by poor transportation, it is very important to obtain a maximum efficiency with the equipment provided.

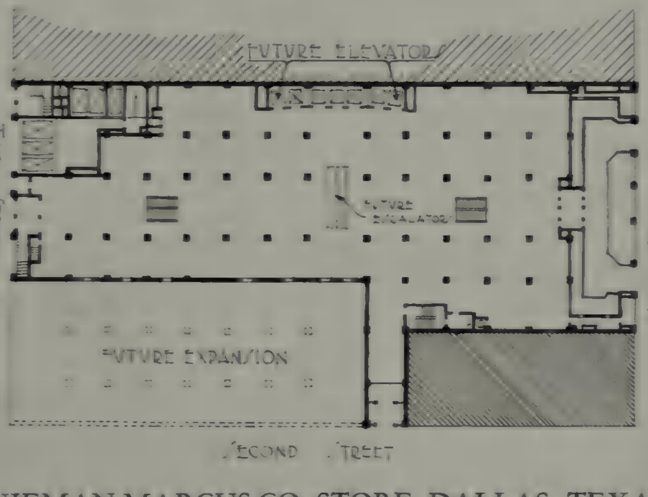
(See also discussion of elevators in general remodeling on page 187.)

A common mistake in locating elevators in a store is to emphasize their location on the main floor only. The importance of the upper floors should be equally considered and the more levels the elevators are intended to serve, either at present or in the future, the more important becomes their location on these upper floors.

The value of selling space on the upper floors varies almost inversely to the square of the distance from the elevators. Accordingly elevators centralized as regards the upper floor areas, present or future, are very desirable. As a general rule any upper floor selling space more than one hundred and fifty feet from the elevators is very difficult to merchandise.

The number and size of elevators required can be figured in several ways. One method is to test the hourly and daily peaks encountered. Compute the volume of business per person entering, and the actual capacity of the proposed transportation. You can then determine the day's volume that the transportation will accommodate during the peak hour. It has been proved that the traffic inside the store varies approximately with the volume of business with a slight tendency of the traffic to increase as the volume increases. Accordingly, we can assume for practical purposes that a chart based on volume represents the daily traffic fluctuation.

The capacity of the transportation, being constant, can be represented on the chart by a straight line. By this means it is easy to visualize just what the overload on the transportation will be. It can readily be seen that it would be impossible to provide elevators to handle the maximum peaks. This is one reason why it is good practice to have stairways convenient and visible from the front of the elevator bank. The elevator capacity is usually only a little more than the *average daily* traffic condition or



NIEMAN MARCUS CO. STORE, DALLAS, TEXAS

HERBERT M. GREENE, LA ROCHE & DAHL, ARCHITECTS

Planned for both vertical and horizontal expansion volume. (The latter can also be represented by a straight line.) In some cases it is advisable to have a *capacity* of nearly twice the daily average volume but this depends on the study of the *hourly* as well as *daily* fluctuations.

Another point to consider in addition to capacity is the interval of departure of the elevators. With good service a car should be leaving the first floor, on the average, every thirty-five or forty seconds. In the highly competitive retail stores of today, convenience to the customer is an important qualification.

In designing new store buildings there are two different methods of planning for additional future space. One we will call vertical expansion wherein the maximum ground area is built up at once but with the minimum number of floors, provisions being made in the footings and columns to add additional stories later on. This is the simplest type to plan because it is only necessary to plan the ultimate building. The framing is all prepared to take additional elevators or escalators as needed and occasionally even the shafts are installed.

Another method of providing for future expansion is to build on only a portion of the ground now available or possibly available at a later date. This we will call horizontal expansion. Of course, it is possible to plan for a combination of vertical and horizontal expansion (such as shown on page 201), but the moment any considerable amount of horizontal expansion is to be considered the difficult problem presents itself, of properly locating present and future transportation.

As a general rule horizontal expansion is preferable from a merchandising standpoint to vertical expansion, because it is possible simply to enlarge the existing selling sections without all the relocation necessary with vertical growth. There is also a greater possibility of flexibility and interchange of space, so necessary to the modern store, when a greater number of sections are located on any one floor. An isolated section never produces as well as one on the same floor with many others.

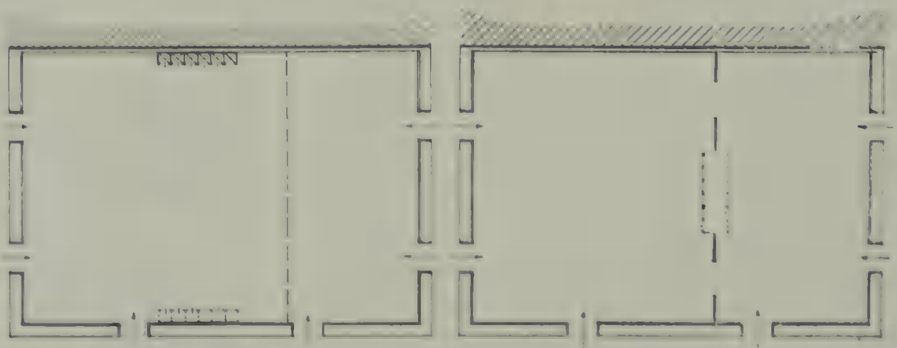
Occasionally it is desirable to build a complete building and lease certain first floor areas to other shops with leases of such length that if the space is necessary at their expiration it is available. Figure V is an illustration of such a scheme. This store was originally built as shown at (a) and later was expanded to size shown at (b). In this case the elevators had to be moved entirely to provide the ideal location in the finished store. This is a departmentized specialty shop, and the need was greater for upper floor space than for main floor space.

One item necessary to consider, however, is the value of the display windows which are lost when possible first floor space is given up. In good locations this is very important. In order to maintain an average representation of display windows the average department store should have one lineal foot of window display to every thousand square feet of gross area. An increase in display over this is desirable, if possible, especially as traffic per population increases above the average condition.

In planning the location of the interfloor transportation for a proposed future horizontal expansion, a scheme such as suggested in figures at top of pages 202 and 203, is a possible solution to provide an ideal condition at all time. (a) Shows the initial unit, (b) the future. If the circulation is properly planned, this scheme results in the maximum efficiency, a centralized grouping giving excellent distribution as well as directional control on the upper floors. It also lends itself to the set-back design, the pent house forming a logical central tower. The first figure is for a store expanding from a volume of approximately four million to ten, and the second a larger store with expansion possibilities to over a hundred million.

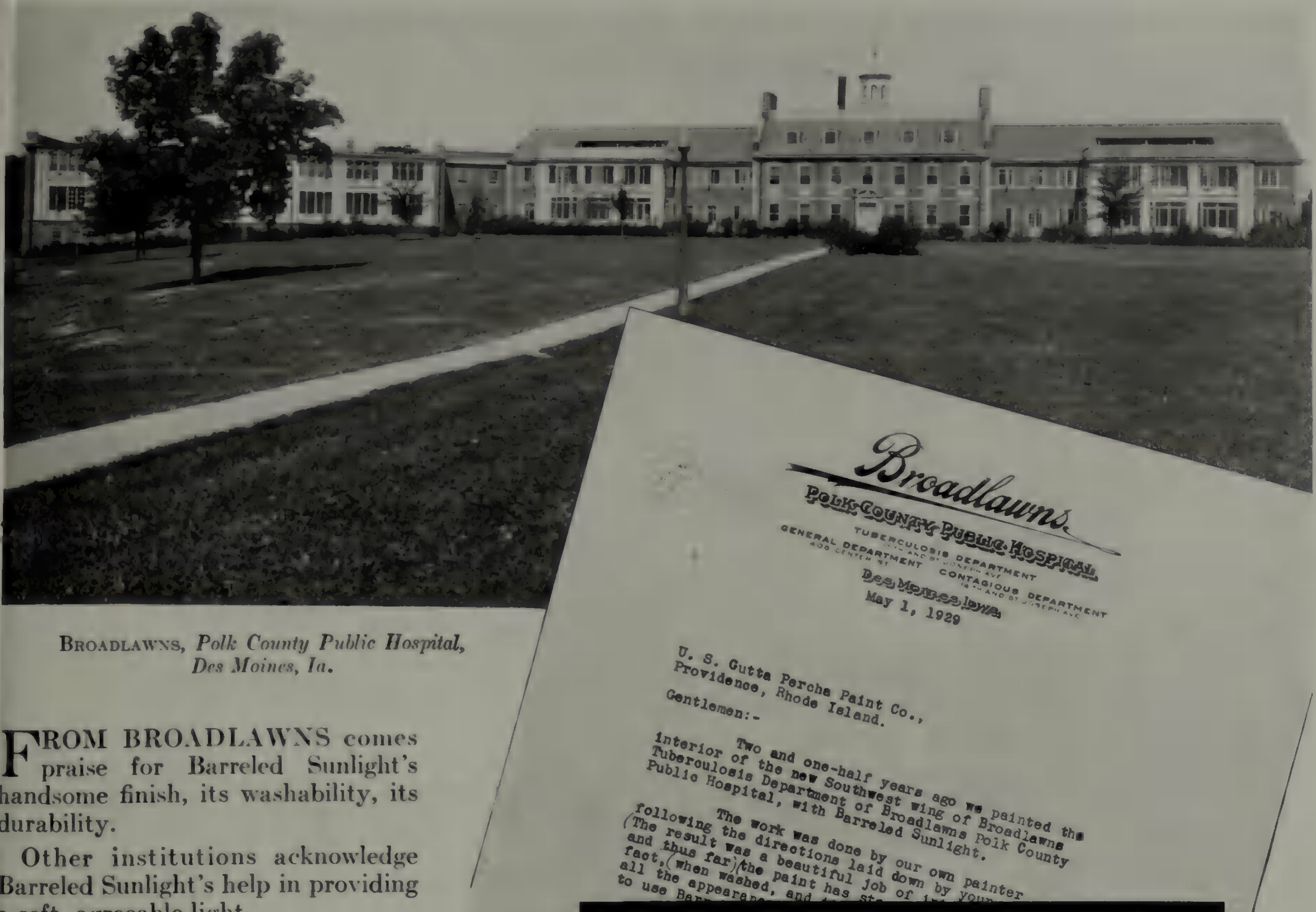
This type of expansion many times in the past has resulted in a scheme as shown on page 204, resulting in inefficient transportation or even loss of valuable daylight with subsequent loss of control and always favoring the areas adjacent to the "best bank".

In conclusion, horizontal expansion is usually preferable to vertical. But when vertical expansion is to be expected, elevators should be planned centrally at the start for the greatest possible extension with the least new structure. Any additional transportation beyond the capacity of one centralized elevator group should be handled by escalators. Present investments for possible future growth must rest on careful market studies.



The scheme at the left results in loss of daylight and in very unequal loading of the two elevator banks. This is remedied in the scheme at the right

Can you *say as much* for the paint you specify?



Broadlawns, *Polk County Public Hospital, Des Moines, Ia.*

Broadlawns
Polk County Public Hospital
Tuberculosis Department
General Department
Contagious Department
Des Moines, Iowa
May 1, 1929

U. S. Gutta Percha Paint Co.,
Providence, Rhode Island.

Gentlemen:-

Two and one-half years ago we painted the
interior of the new Southwest wing of Broadlawns
Tuberculosis Department of Broadlawns Polk County
Public Hospital, with Barreled Sunlight.

The work was done by our own painter
following the directions laid down by
(The result was a beautiful job of
and thus far)the paint has
fact,(when washed, and
all the appearance
to use

FROM BROADLAWNS comes praise for Barreled Sunlight's handsome finish, its washability, its durability.

Other institutions acknowledge Barreled Sunlight's help in providing a soft, agreeable light.

All users agree that its long-lasting whiteness and cleanliness materially reduce repainting.

Now Broadlawns, in common with numerous other users of Interior Barreled Sunlight, has turned to Outside Barreled Sunlight, for equally satisfactory results in exterior painting.

For full information on both Interior and Outside Barreled Sunlight, mail coupon. (See our catalog in Sweets.)

U. S. Gutta Percha Paint Co., 22 B Dudley Street, Providence, R. I. Branches or distributors in principal cities.

BROADLAWNS HOSPITAL SAYS:

". . . a beautiful job of interior decoration . . . has stood up very well . . . when washed, and it is easy to wash, it retains all the appearance of new paint.

"We have also repainted the outside of the Tuberculosis Hospital with Outside Barreled Sunlight, which after one year seems to be in excellent condition."

Barreled
Reg. U. S. Pat. Off.
Sunlight

Easy to Tint

An all-oil product, Barreled Sunlight is readily tinted any desired shade with ordinary colors in oil. Quantities of 5 gallons or over are tinted to order at the factory without extra charge.

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Please send me—
(Check) ☐ Your booklet "The Whitest White House in Town" (Outside Barreled Sunlight).
☐ Your booklet "Information for Architects" (Interior Barreled Sunlight).

Name____________________
Street____________________
City________________State________

"Well, GEORGE,

—how do you like the new floors?"

THE architect sees the floor as part of the decorative scheme. Building owners and managers look on floors as an investment factor. But the one who takes care of the floor—be he janitor, porter or domestic servant—is usually concerned with just *one* thing—will the floor make *his* work easy, or difficult?

And since the question of care and cleaning has a definite bearing on floor cost, appearance and usefulness—let us consider floors, for a moment, from the human angle of George, the janitor. The easier the cleaning process, the more likely your floors will be properly cleaned, retaining their original attractive appearance.

Install floors of *Sealex* Linoleum or *Sealex* Treadlite Tile and George's toil is considerably reduced—for *Sealex* floors are surprisingly easy to clean. They are spot-proof and stain-proof. No need to use expensive, powerful cleaning agents. Sweeping with a push-broom or a light mopping is all that is necessary to remove dirt and spilled things. Waxed occasionally, the smooth, lustrous surface of a *Sealex* floor is a thing of beauty.

Sealex Linoleum and Tile are modern floors—handsome, resilient, practical, durable. Buildings which serve residential or business tenants are using them more and more to attract tenants and cut costs.

They may be as elaborate and luxurious—or as simple and inexpensive—as you desire. Solid-colored floors of *Sealex* Battleship Linoleum, for example, are probably the cheapest good floor money can buy; whereas floors of *Sealex* Treadlite Tile are "custom-laid" floors of great beauty which make possible the reproduction of any pattern, motif or design, in plain or marble-ized materials.

When *Sealex* floors are installed by an Authorized Bonded Floors Contractor, the owner is assured of highest quality materials and expert workmanship. The work of our Authorized Bonded Floors Distributors—located in all principal cities—is backed by our Guaranty Bond, issued by the U. S. Fidelity and Guaranty Co. of Baltimore, Md.

Let us tell you more about our Bonded Floors Installation Service. Write for our booklet, "Facts You Should Know About Resilient Floors for Offices, etc." Address Department F.

SEALEX LINOLEUM

BONDED FLOORS

Sealex Linoleum and Tile *Backed by a Guaranty Bond*

CONGOLEUM-NAIRN INC., 195 BELGROVE DRIVE, KEARNY, N. J. AUTHORIZED CONTRACTORS ARE LOCATED IN PRINCIPAL CITIES

Directly below is the Republic Building — also of Denver

Architect:
G. Meredith Musick
Builders:
Dutton & Kendall Co.
Hardware: Corbin

•

The second building below is the Denver National Bank Building

Architects: Fisher & Fisher
Builders:
Kirchhof Construction Co.
Hardware: Corbin

At your left is the Mountain States Telephone & Telegraph Building

Architects: Wm. N. Bowman Co.
Builders:
C. E. Walker Const. Co.
Hardware: Corbin

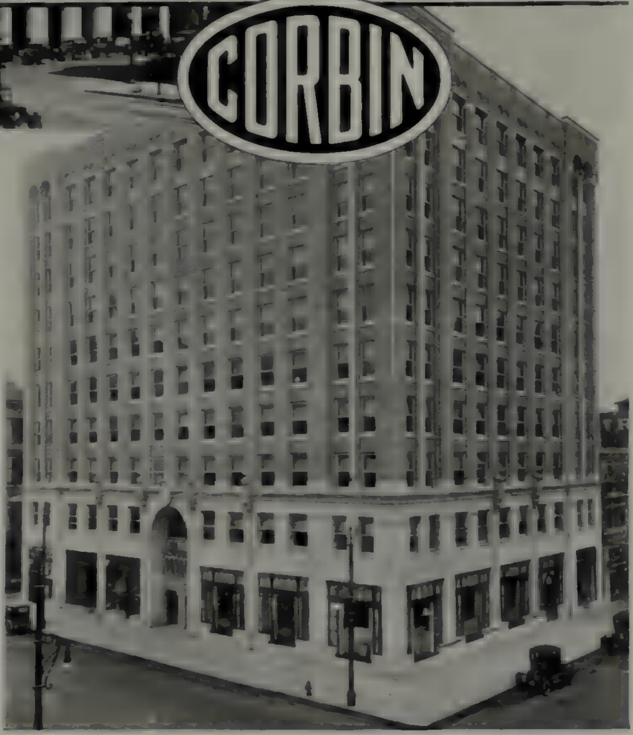
•

Below is the Midland Savings Bank Building, also of Denver

Architects: Fisher & Fisher
Builders: Alex Simpson
Hardware: Corbin

GOOD BUILDINGS DESERVE GOOD HARDWARE

CORBIN



What Denver buildings deserve . . Denver architects specify

When most of the finest buildings in so modern a city as Denver are equipped throughout by Corbin, we know we are not alone in our belief that good buildings deserve good hardware.

What all good buildings deserve, Denver buildings are getting—Good Hardware—Corbin.

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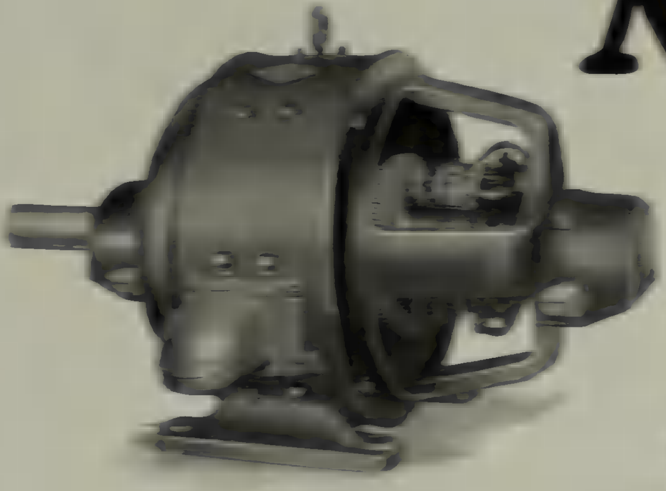

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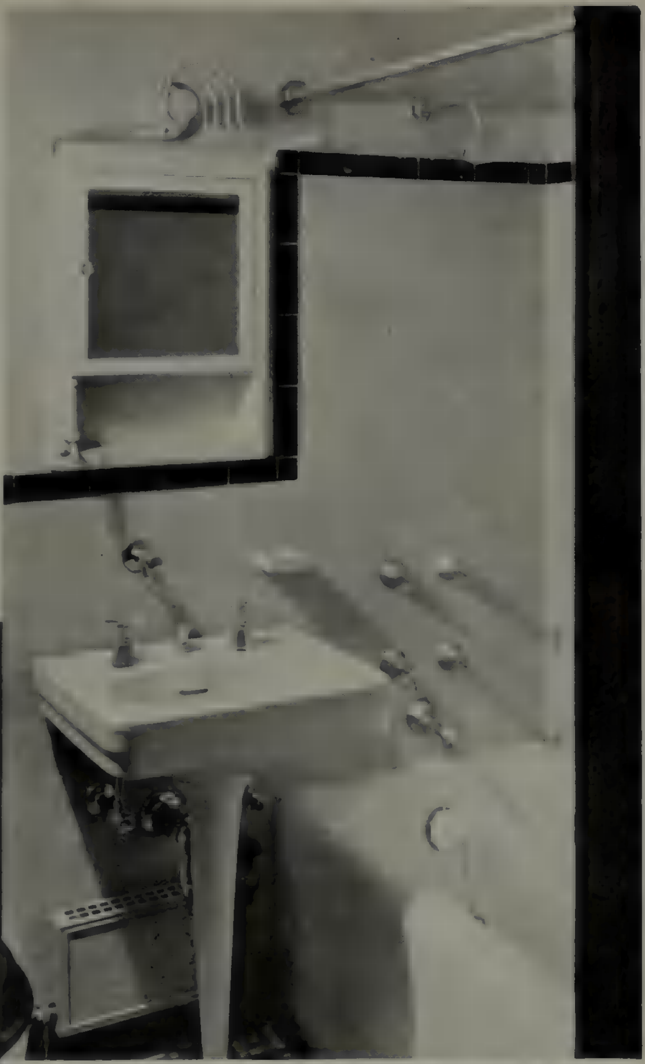

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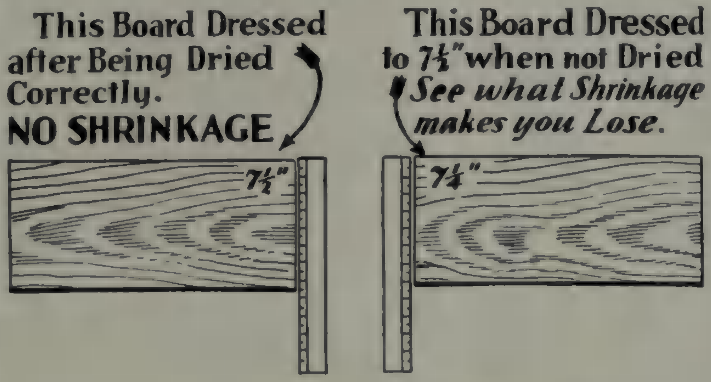
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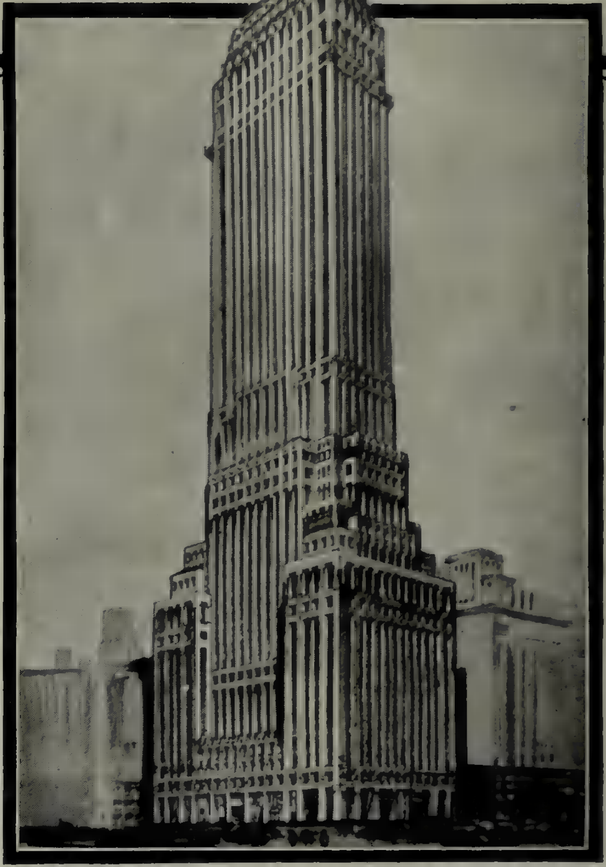

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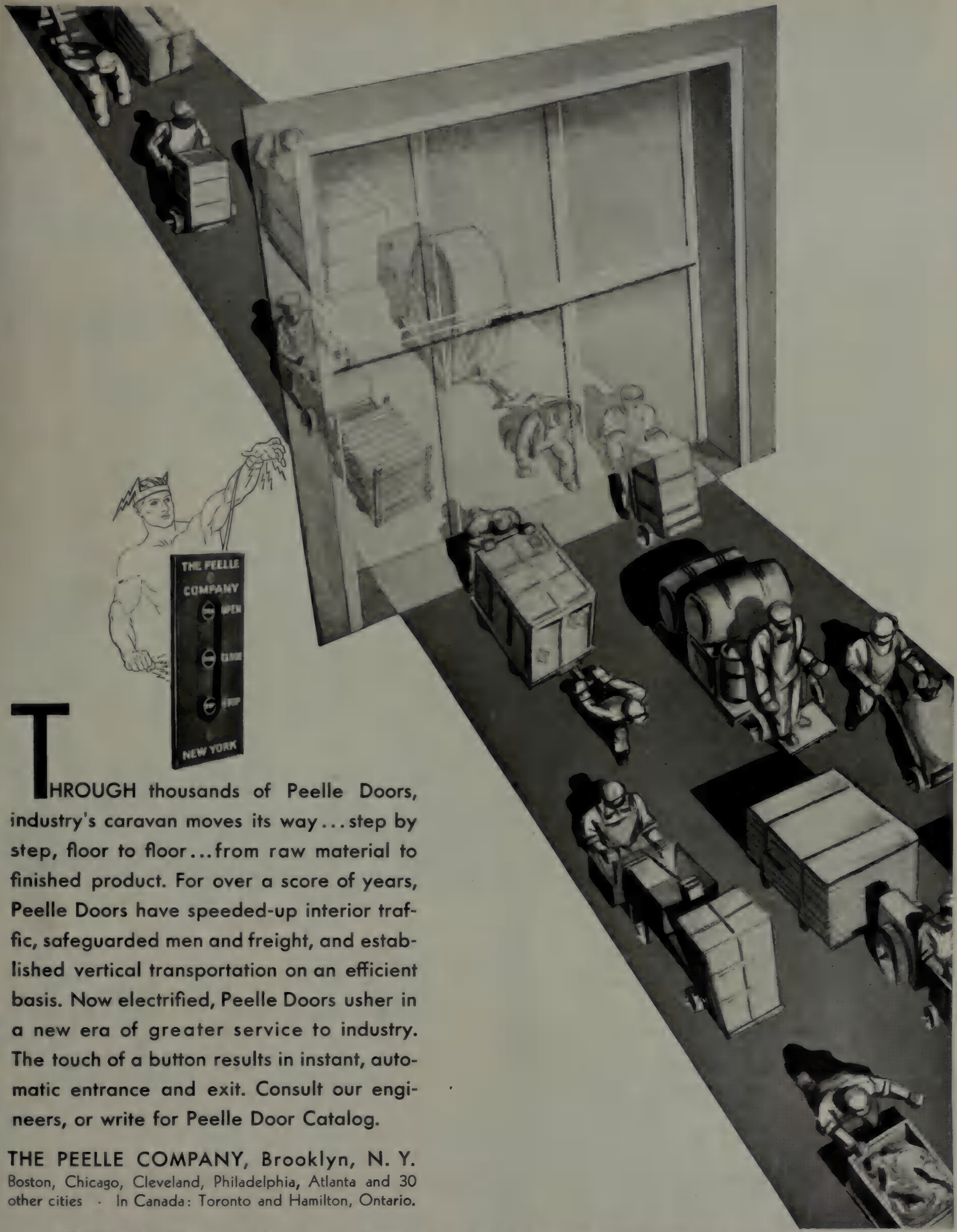

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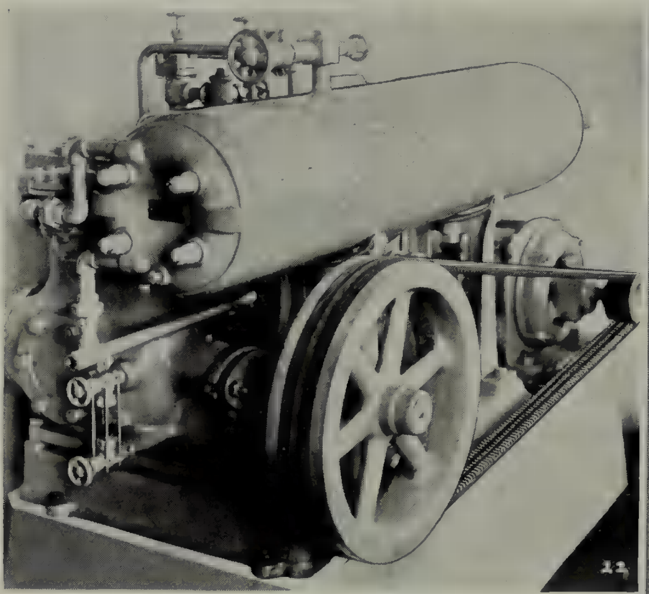

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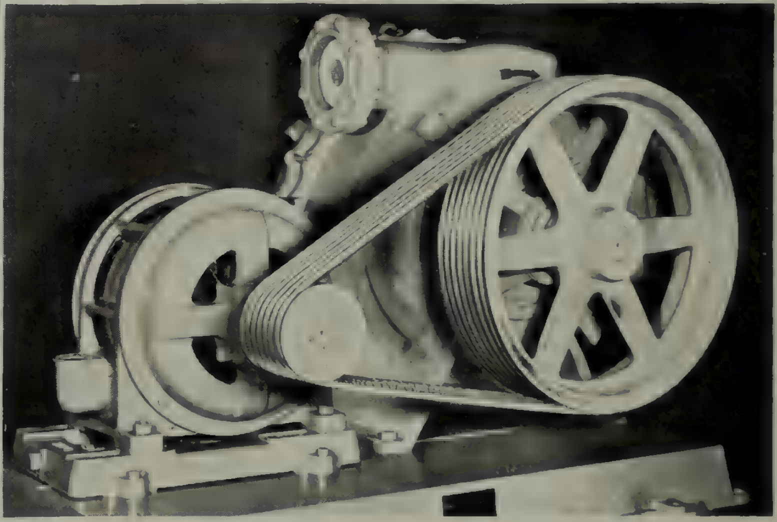

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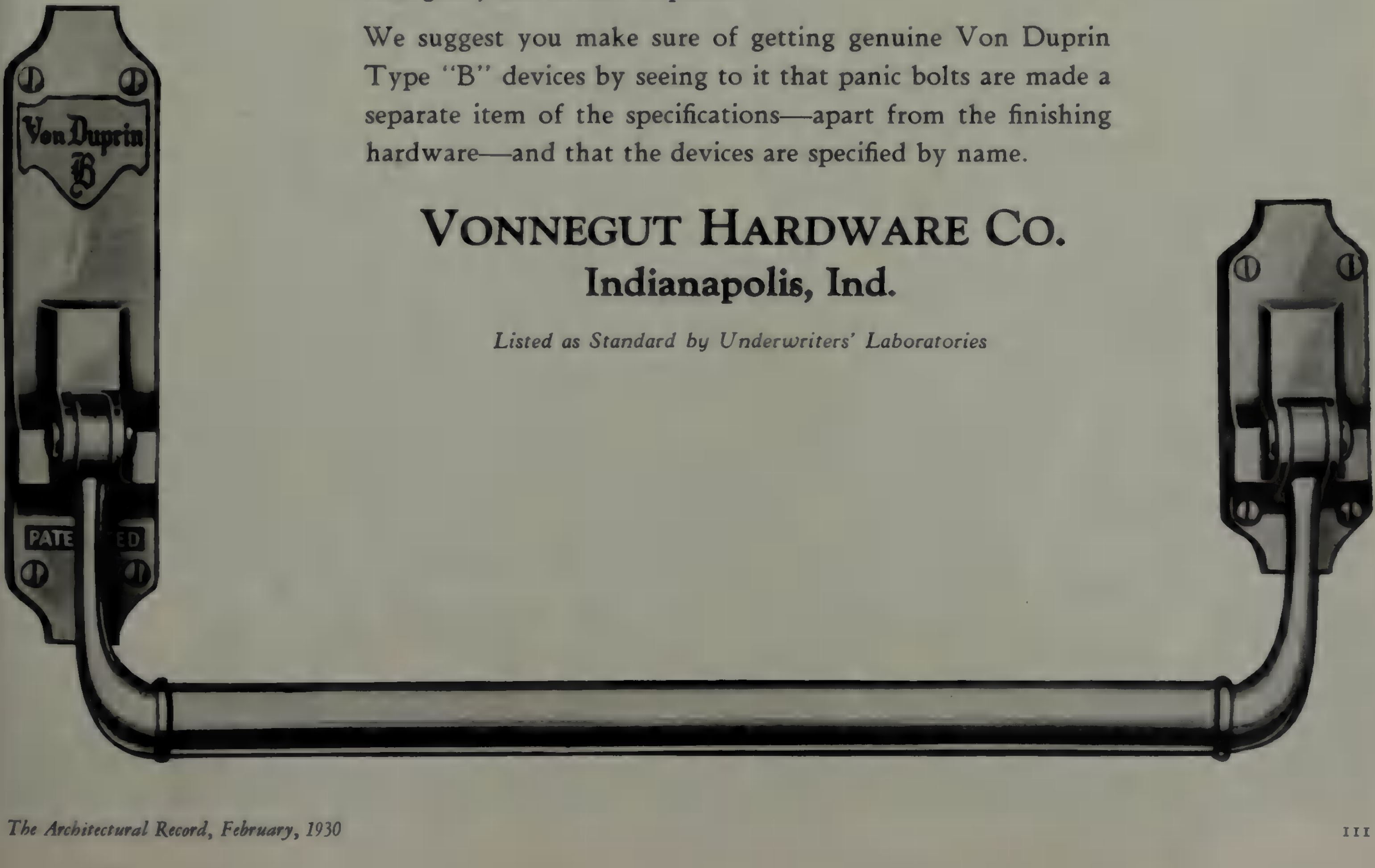

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Architect

Architects may be interested to know that complete "Circle T" Trumbull installations, including Panelboards, Switchboards and Switches of various types, are to be found in thousands of the best buildings erected in all parts of the country. "Circle T" Trumbull engineers gladly cooperate with architects and engineers in suggesting practical layouts. On request, copies of these publications: Safety Switches; Trumbull "Controlite"—Theatre Switchboards; Flex-A-Power — The Convenience Outlet for Power in Industry; Trumbull "Cheer"—A monthly publication of the Trumbull line.

THIS towering skyscraper is equipped with 117 lighting panelboards totaling 4600 circuits, 82 of which control the lighting system in space occupied by the New York Life Insurance Company while the remainder are of the metering type used in rented space.

For the convenience of occupants the metering panelboards are of the middle wire gutter and meter bar type arranged so that in the floor area controlled by panels, branch circuits can be connected to any meter installed. All the lighting panelboards are located in wire shafts, accessible to authorized persons only, and are of the live front type for cartridge fuses.

For power distribution we furnished 17 panelboards of the live front type with fusible knife switches in the branches, and for miscellaneous lighting and power we installed approximately 20 dead front panelboards, located in various parts of the building. All of these panelboards were built to the highest engineering standards consistent with all "Circle T" Trumbull installations and the knife switches are of type A construction having hinge and jaw posts sweated and pinned to the foot blocks.

The current supplied for light is 3 wire 115-230 volts direct current and for power 2 wire 220 volts direct current.

See the Trumbull "Circle T" catalogue in the new 4-volume Sweet's, Vol. D, pages 5164-5165.

THE TRUMBULL ELECTRIC MANUFACTURING COMPANY

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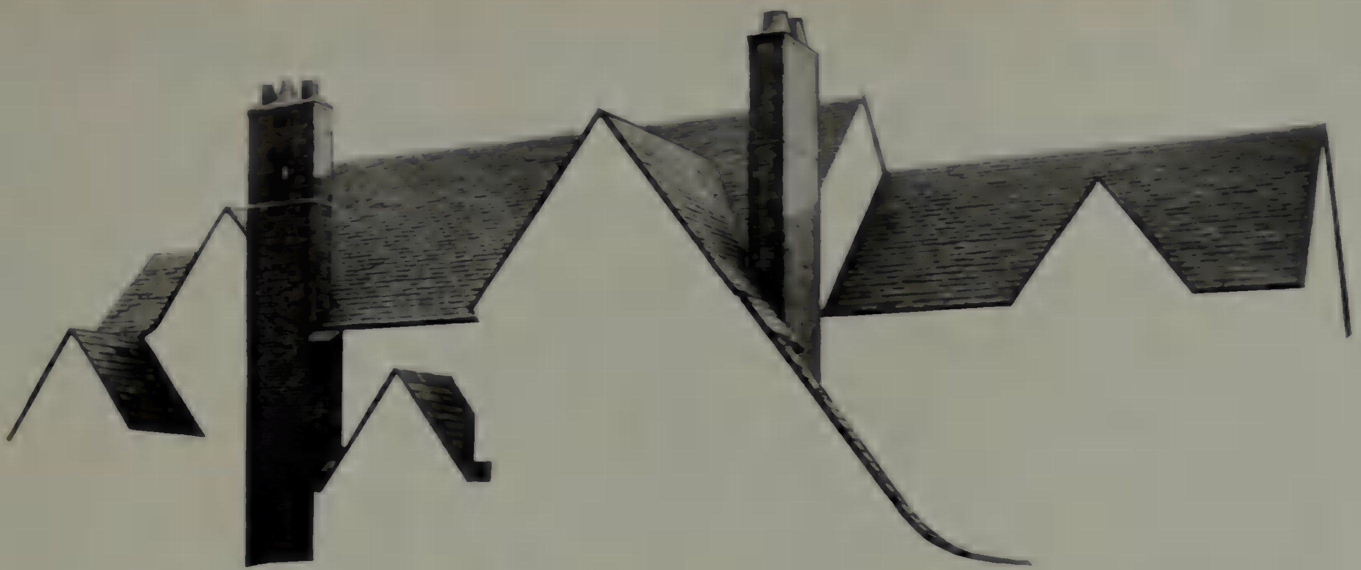


BRYN MAWR SLATE

Brookside, West Hartford, Conn. Fred Patience, Esq., owner. David S. Douglas, Hartford, Conn., architect. An Owens roof of Bryn Mawr Vermont slate.

IN tones, colors, patterns, textures, your specifications are wrought into roofs of Bryn Mawr slate by craftsmen born. Generations have contributed a knowledge and a tradition of craftsmanship to the production of Bryn Mawr Vermont slates through the past forty-five years. Pride of craft is seen not only in following the blueprint and specification: it is apparent in the ever-satisfying beauty and distinction of the finished roof.

By artistic gradation of tones and selection of colors in either unfading or weathering slates, by flexibility of design and control of sizes and thicknesses, Bryn Mawr slates are widely preferred to produce effects in roofs, flagging and interiors not duplicated in any other medium.

We invite the consultation of architects and are prepared to cooperate fully at all times, without obligation.

BRYN
MAWR
SLATE

Please refer to Sweet's Catalog, 1930, vol. B, page 1754.

OWEN W. OWENS' SONS, INC.

Producers of Vermont Slates Since 1884

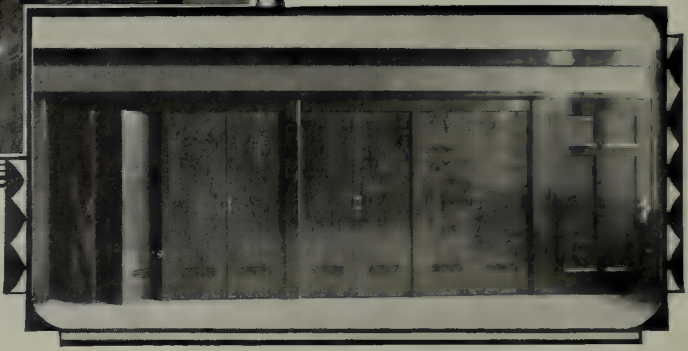
GENERAL OFFICES: GRANVILLE, N. Y.

Wilson

HYGIENIC SCHOOL WARDROBES

What Good are Cloak Rooms Anyway?

Showing installation in class room of Belmont, Mass. High School. Note how doors do not block aisle when wardrobe is open.



These Wilson disappearing door wardrobes were installed in College Hill Public School, Cincinnati. Elzner & Anderson, Architects.

THE old-fashioned cloakroom has served its purpose, for the most part in demonstrating the useless construction expense attached to a separate walled-in enclosure, its unsanitary characteristics and as an obstacle in the path of educational efficiency.

Wilson Hygienic Wardrobes become an integral part of the class room, but without undesirable encroachment on valuable floor space.

In the Disappearing Door type, the doors, when open, protrude but 2½ inches into aisle space, folding easily and neatly to the sides of the individual cabinets.

They may be set against the wall or be installed in a convenient recess.

They can be made to conform to any special interior finish, the upper parts of the doors provided with blackboard surface that meets with no interference from clothes inside.

Wilson Hygienic Wardrobes can be connected to the ventilating system, providing hygienic conditions.

They are constantly under the teacher's eye, promoting discipline.

Besides these advantages, they conserve construction funds, saving, for example, $120 to $187 in a room 29'x22'x12'.

Wilson Wardrobes are made by pioneers in this field, proving their superiority during 50 years of service. They are installed under our own supervision and are guaranteed for one year.

For full details as to advantages, descriptions, etc., including the Wilson Rolling Front type for small schools with limited construction appropriation, send for catalog No. 1.

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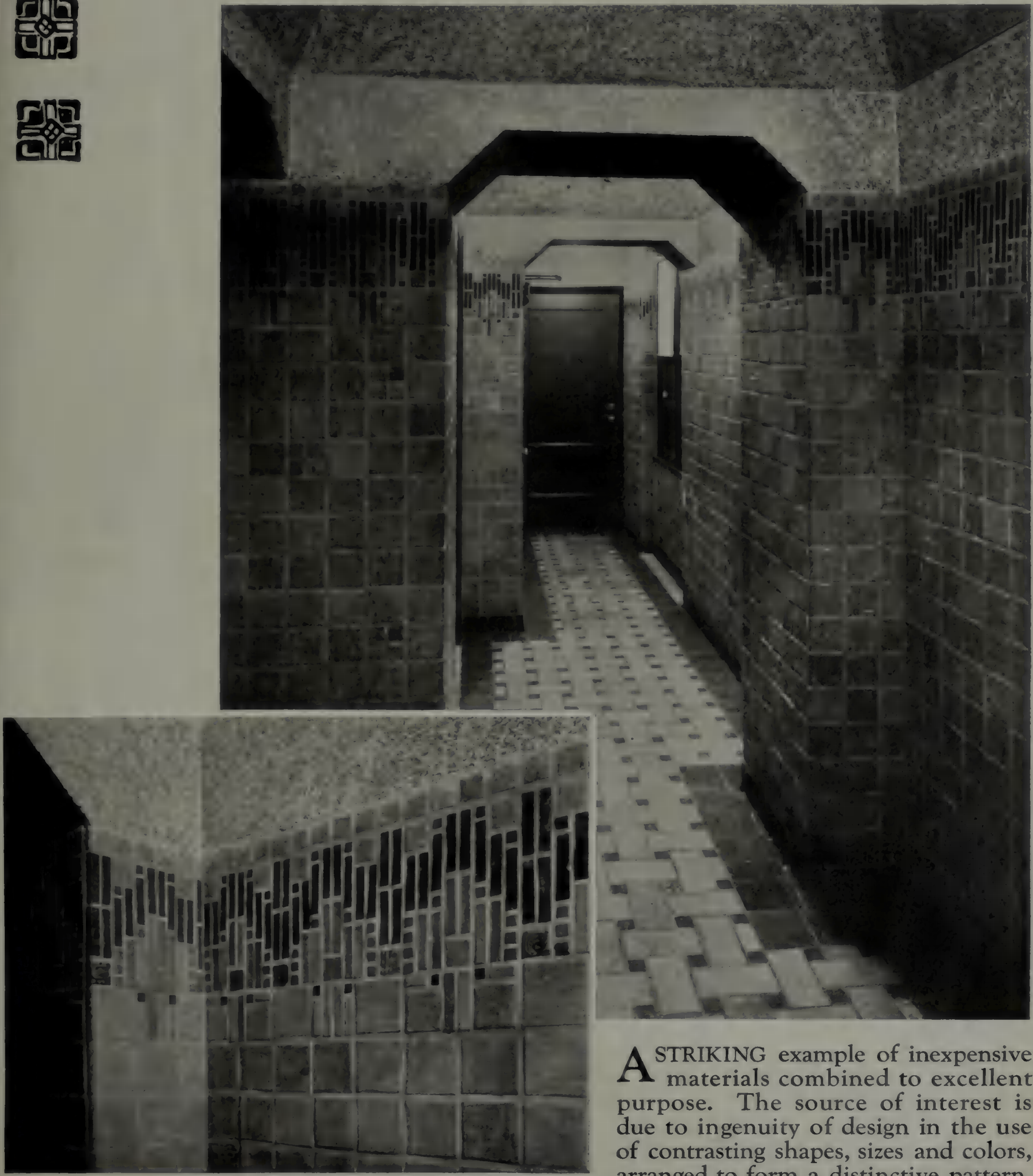

PAN-HELLENIC BUILDING ANNEX, NEW YORK
John Mead Howells, Architect
Tile Installation by Wm. J. Adelson Company

A STRIKING example of inexpensive materials combined to excellent purpose. The source of interest is due to ingenuity of design in the use of contrasting shapes, sizes and colors, arranged to form a distinctive pattern. The scheme has a real decorative value.

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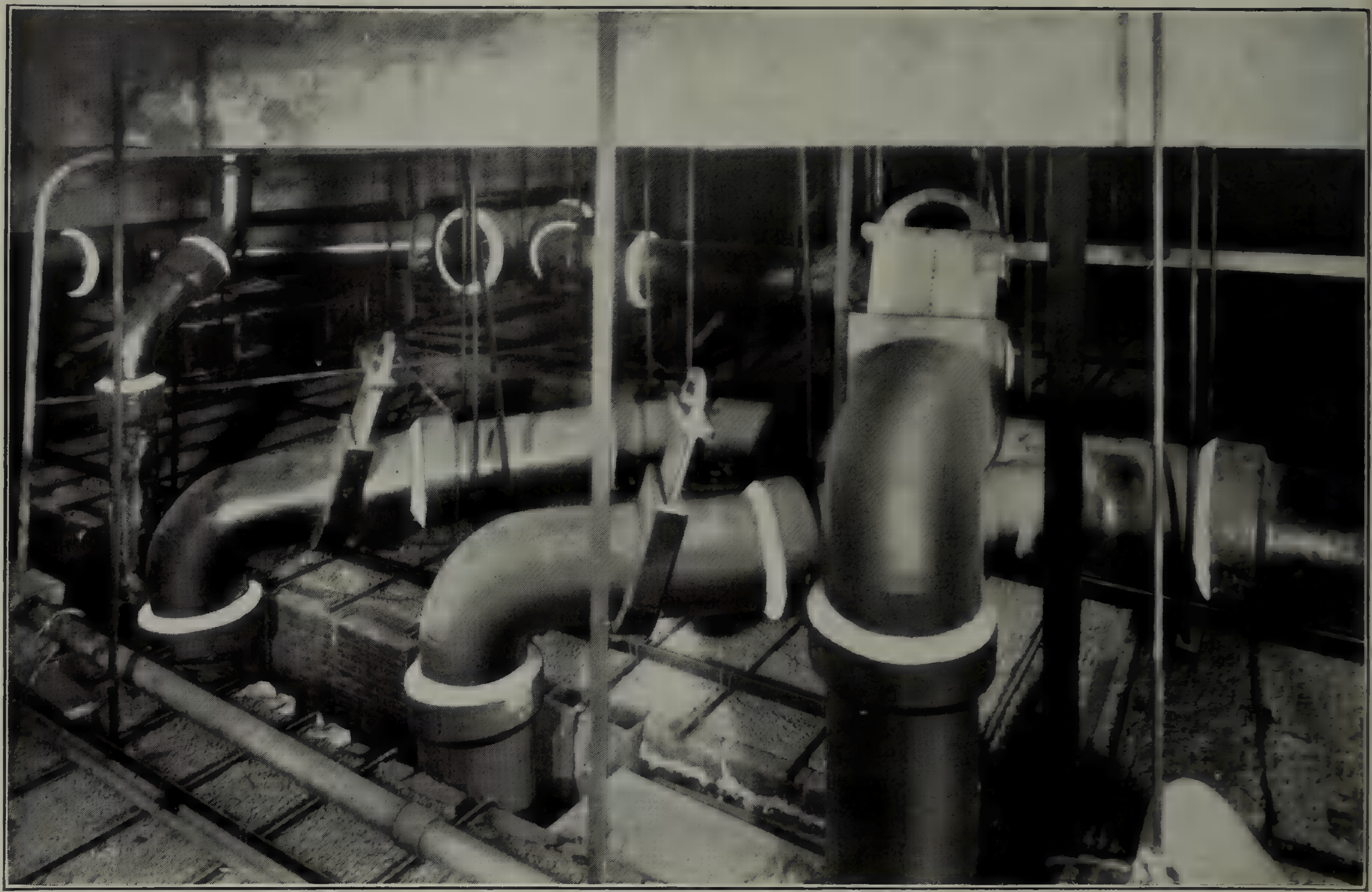

Knight-Ware Vent Ducts in the Loft—Princeton University

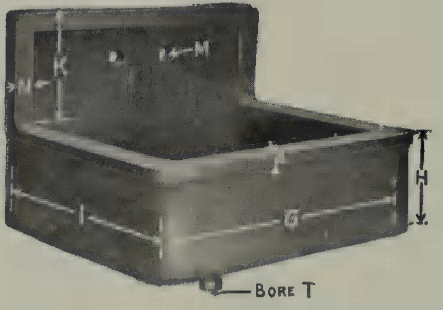

Figure 237
Acid Proof Sink with Back

We manufacture any and all designs of Acid Proof Laboratory Sinks, Acid Sumps and Catch Basins, Ventilating Flue Caps and any acid proof equipment for the building.

Acid Proof Ventilating Systems

Laboratory equipment authorities are realizing more and more the vital importance of an acid and corrosion proof ventilating system. In reality these lines, conducting all kinds of mixed acid and corrosive gases, form perfect condensing systems due to weather and temperature changes. Necessarily the resulting conditions are in many cases the most severe of any to handle in your laboratory and call for the best available material to take care of this problem.

KNIGHT-WARE Vent Pipe, made in any bore up to 60 in. and in any design of standard or special Fitting desired, has been chosen for this service in many of the leading colleges and universities throughout the country.

The Princeton Chemical Laboratory photo above shows the maze of Vent Ducts in the Loft and how cross-overs were effected to make proper connections. In all there were 39 Fan Lines in this loft varying in bores from 9″ to 28″ and many special Fittings and Manifolds were made to economize in space.

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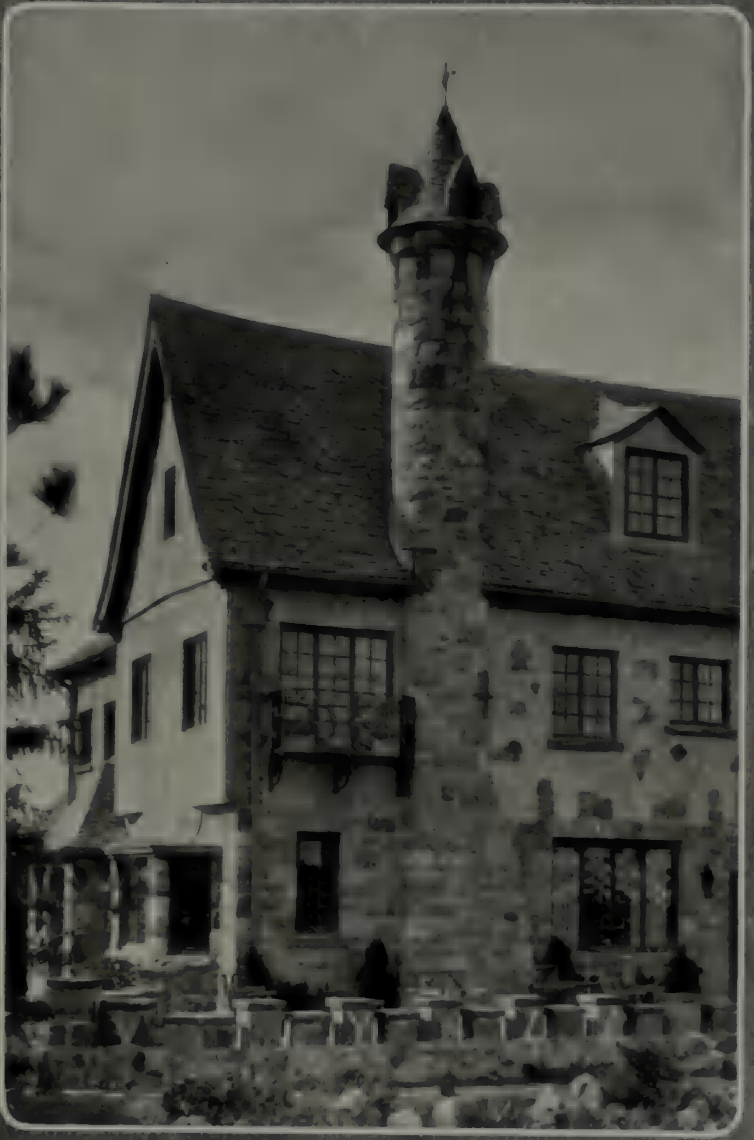


Residence
Huntington, N. Y.

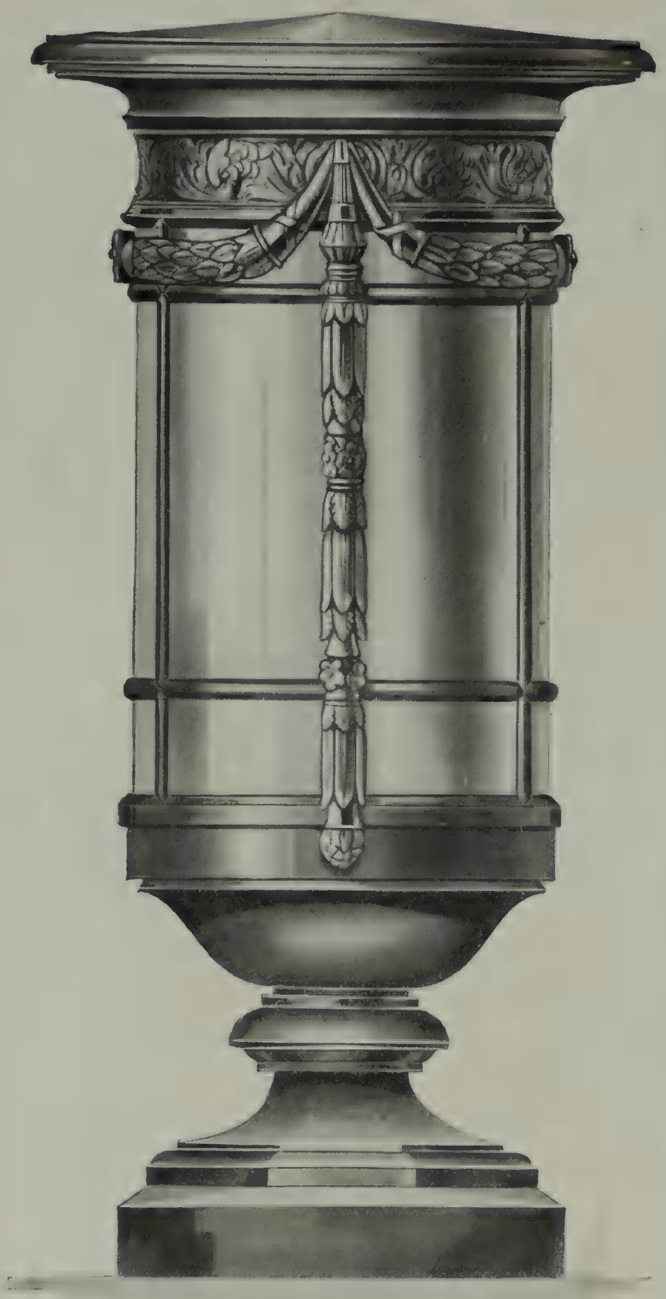
George Alexander
Architect

Like all installations, this Tudor Stone Roof was especially designed—one of the main ideas being to effect the appearance of age. Rough, irregular cuttings, with many broken edges, plus a blending of dull color tones, produced the result desired.

Rising-and-Nelson-Slate-Company

WEST PAWLET, VERMONT
Architects' Service Department: 101 Park Avenue, New York City

CHICAGO DETROIT PHILADELPHIA BOSTON



No. 441

Scale 1″ equals 1′
Overall height 5′ 10¼″
Diameter of Lantern 26″ overall
Diameter of Glass 23″
Base 25″ square

Designed for
CAMPBELL MEMORIAL
Portland, Oregon

PAUL P. CRET, *Architect*

A·L·E·A

A Lighting Conception May Perish Like a Poorly Constructed Building

As an architect, of course you know the importance of providing for every stress and strain in a construction problem. A slight miscalculation here or there and the entire structure would be unsound.

As an architect, you likewise know that your exterior lighting designs will perish as an expression if they are not finished perfectly in every detail. A blemish here or there and the entire effect is destroyed.

Every Smyser-Royer Co. lighting fixture is built to last. These fixtures are carefully finished and made strong enough to stand the test of time. If you desire to have an original design produced you can depend upon a faithful interpretation of the specifications. In case an original conception is not needed our Catalogue J displays lamps, lanterns and brackets for every period and purpose.

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FEW statements sum up the FLAX-LI-NUM "two-air-space" method of insulation as clearly and as completely as the following quotation from the U. S. Bureau of Standards Letter Circular No. 227: "If a layer of material is placed in the middle of a wide air space, such as that between the studs in a frame wall, greater additional insulating value is obtained than if the material is placed in contact with the sheathing, or as a plaster base, as has been assumed in the calculation for table (3). In the former case, the insulating layer not only furnishes its own insulating value, but in addition, divides the air space into two parts, each of which has about the same insulating value as the original air space. The insulating value of an ordinary air space more than about one inch in width is equivalent to about ¼ inch of insulating material. The addition of a half inch layer of insulation in the middle of the air space in a frame wall is, therefore, the equivalent of adding about a ¾ inch layer at some other place in the wall."

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If you are interested in the FLAX-LI-NUM "two-air-space" method of application, we will gladly send you a copy of the FLAX-LI-NUM Manual for your files. When pure insulation . . efficient and permanent . . is desired, FLAX-LI-NUM stands alone in its heat-stopping value.

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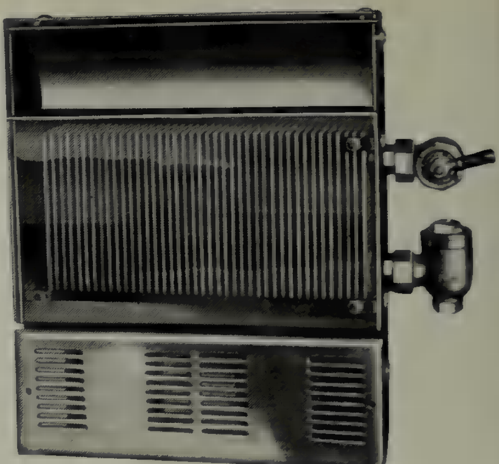
BETTER APPEARANCE MORE ECONOMY *and* BETTER HEAT DISTRIBUTION



An ideal installation for Aeriet is under windows

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It is wholly enclosed within walls or partitions, presenting no unsightly radiators to interfere with interior arrangements. It projects warmed—not hot—air out into the room at the living level from which it rises, rather than directly up the walls to the ceiling as with every other domestic heating equipment. No smudge on walls reveals the location of the Aeriet.

Positive, automatic, thermostatic control in each room eliminates all manual regulation or attention. And yet simplicity of design avoids any necessity for service.

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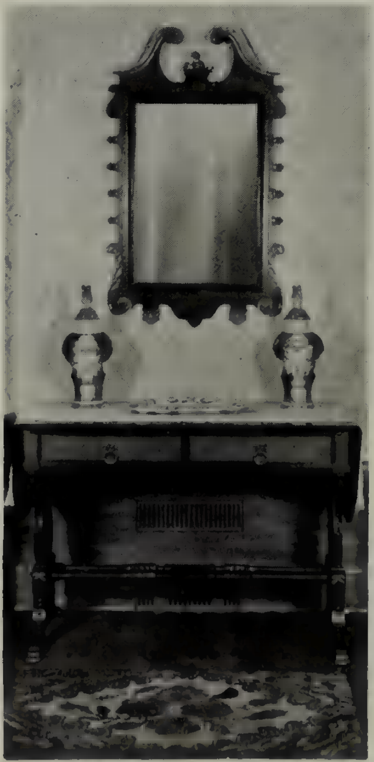
Complete detailed information about Air-Way Aeriet is given in a comprehensive booklet which will be sent free to all who request it. Use the coupon on this page and have all the facts about this new heating equipment.



Aeriet helps rather than hinders interior decoration and artistic furnishing arrangement

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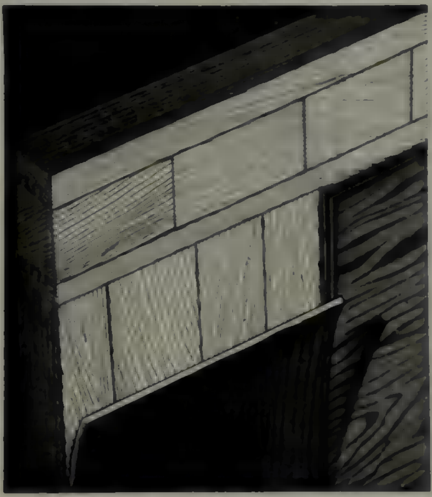

LAMINEX DOORS "DON'T SWELL, DON'T WARP"

HOW SPLENDIDLY THE LONG, PARALLEL PHILIPPINE RIBBONS ENHANCE THE FINE SIMPLICITY OF THE STOCK 1 PANEL

PHILIPPINE LAMINEX DOOR, BENJAMIN FRANKLIN HOTEL

SEATTLE, WASHINGTON . . . EARL A. ROBERTS, ARCHITECT

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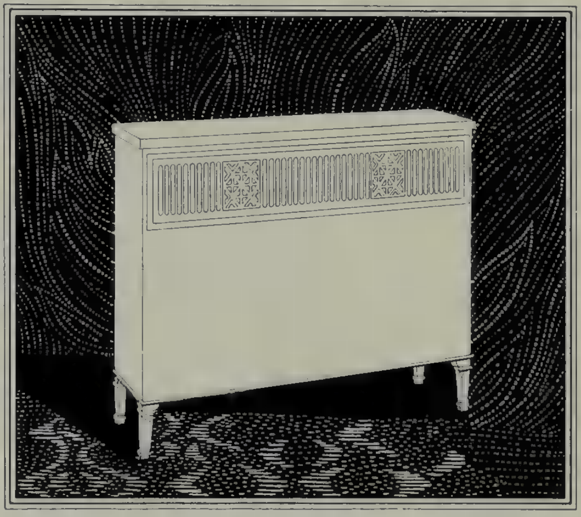

Built of fine furniture steel, cabinets housing The Lewis Air Conditioner can be finished in any color or grain to harmonize with interior decorations. Available concealed units become a part of the wall—conform with modern concealed radiation. Basement installation specifications upon application.

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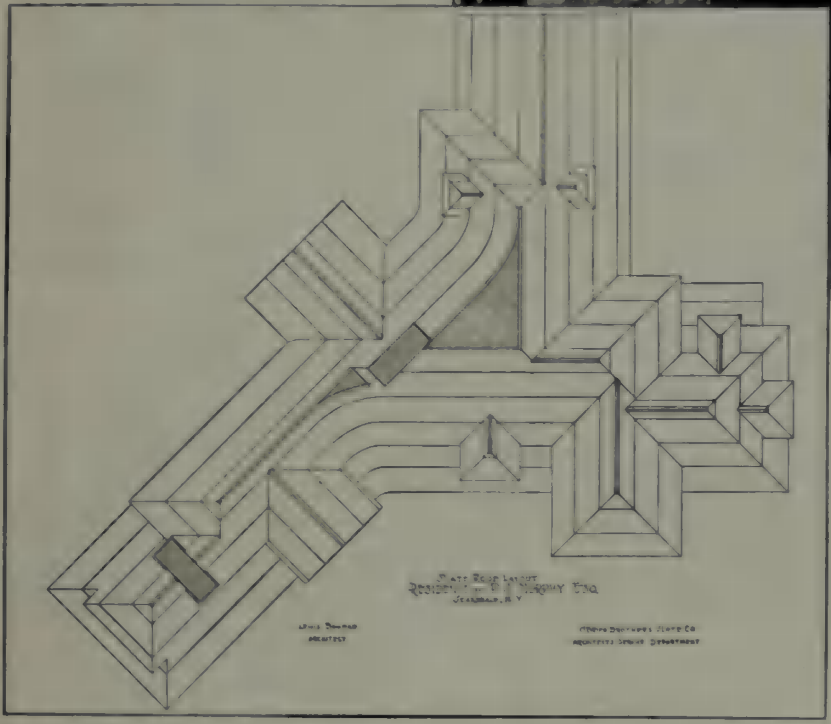
The P. J. Murphy residence at Scarsdale, New York, accompanied by a plan of the actual roof layout as worked out by the O'Brien Bros. Architects' Service Department. The architect was Lewis Bowman, Bronxville, N. Y.

O'Brien Bros. Architects' Service Department will be glad to prepare plans and specifications for architects for "The Custom-Made Roof". Correspondence is invited on this subject.



SPECIFICATIONS FOR THIS ROOF

Exposures 9½" to 3½". Thicknesses intermixed, 1" to 3/16", with larger percentage of thicker slate at the eaves, gradually diminishing to thinner slate at the ridge. Texture semi-rough. Color uniformly intermixed throughout, in soft green, shaded gray, and assorted rustic bronze and buff freaks on Vermont black and grey slate base.

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Represented in Sweet's Architectural Catalogues Volume B, Page 1737

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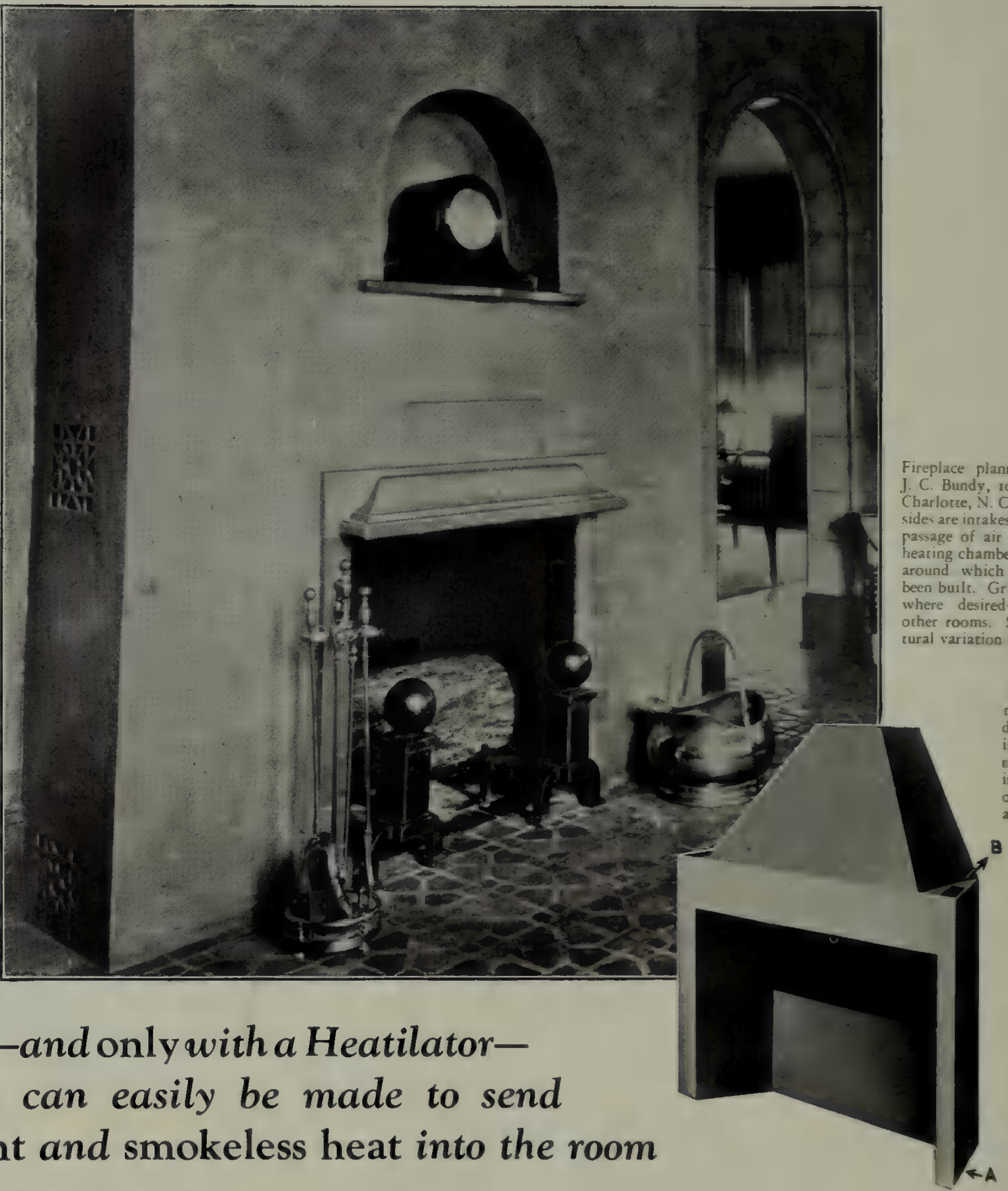
Perfecting the Fireplace



Fireplace planned and built by J. C. Bundy, 104 Pembroke Ave., Charlotte, N. C. The grilles in the sides are intakes and outlets for the passage of air through the inner heating chamber of the Heatilator, around which the masonry has been built. Grilles may be placed where desired—even carried to other rooms. Scope for architectural variation is unlimited.

Illustration shows the Heatilator as delivered, ready to install. **A** indicates [illegible] of two cold air intakes. **B** indicates one of two warm air outlets.

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(1) It positively assures the proper proportions and angles necessary for smokeless operation.

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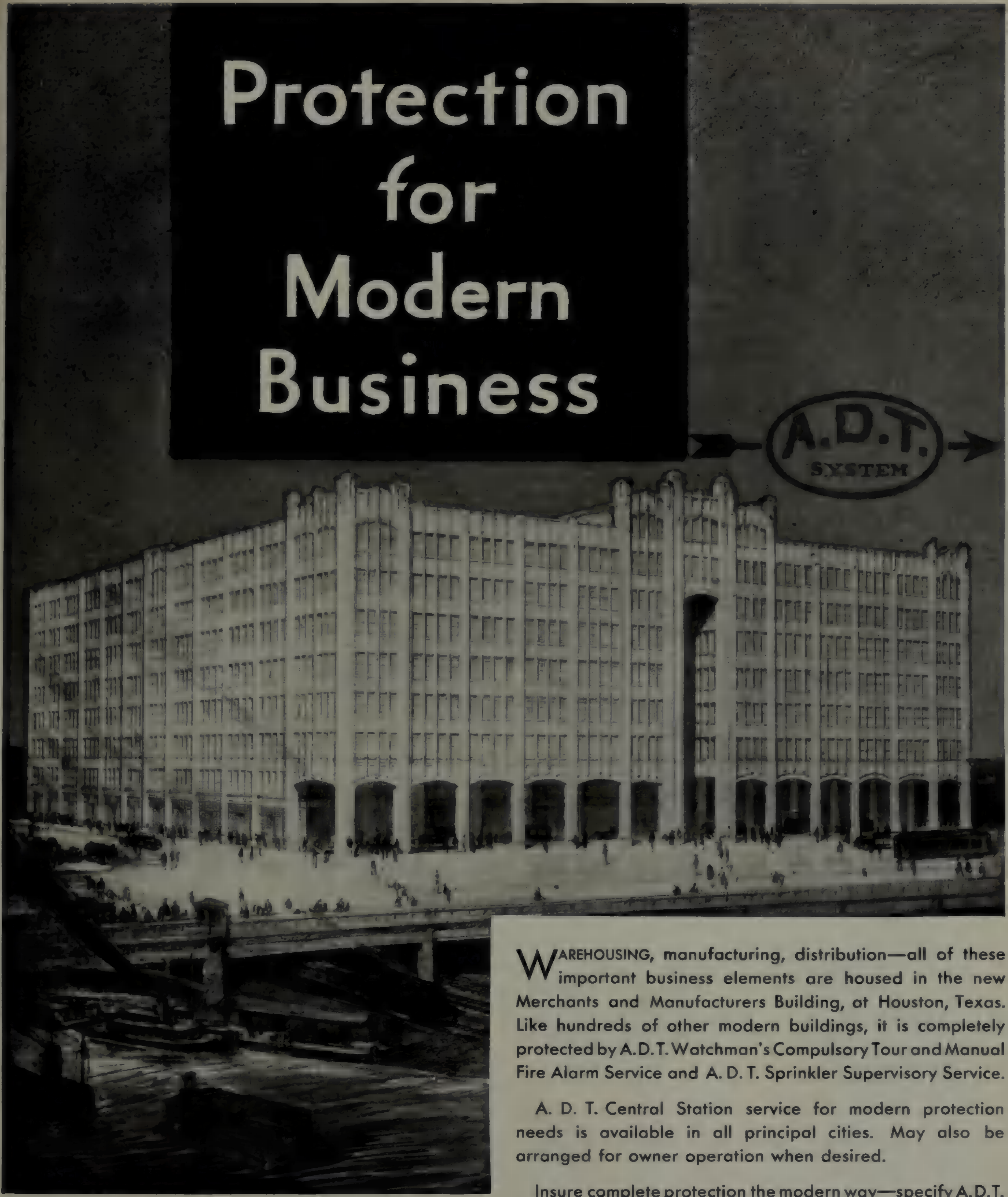

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Integrity Trust Building, Philadelphia, Pa. Paul P. Cret, Architect; Isaac H. Francis, Engineer; Charles Monday, Heating Contractor.

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IT is astonishing where radiators can be made to go—when they are Robras 20-20 Radiators. In the beautiful Integrity Trust Building, in Philadelphia, the radiators that *might* have marred the effect of a striking lobby are back of the lobby, out of sight, out of the way. (As the illustration shows).

There are Robras 20-20 Radiators in sills of French windows. In bulkheads of show windows. Under counters in banks. Behind wood panelling in churches . . . In all conceivable kinds of odd spaces, in homes, not over 4 inches deep!

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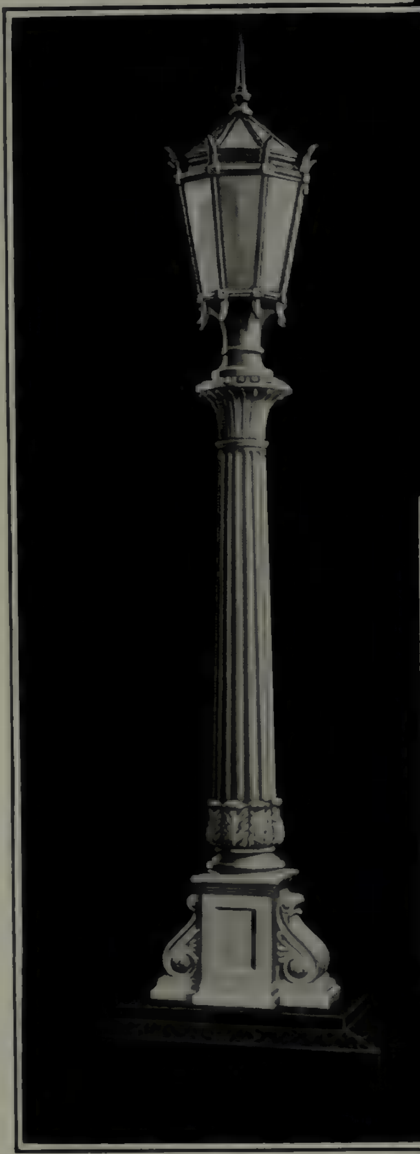
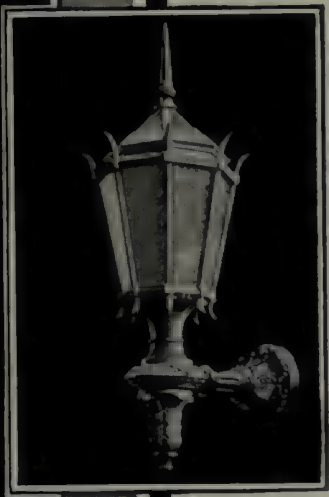
ROME BRASS RADIATOR CORPORATION, 1 East 42nd Street, New York, N. Y.

BRONZE-Standards, Newels, Brackets-IRON



Entrance
Standard
No. 7025



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EXTERIOR
LIGHTING FIXTURES

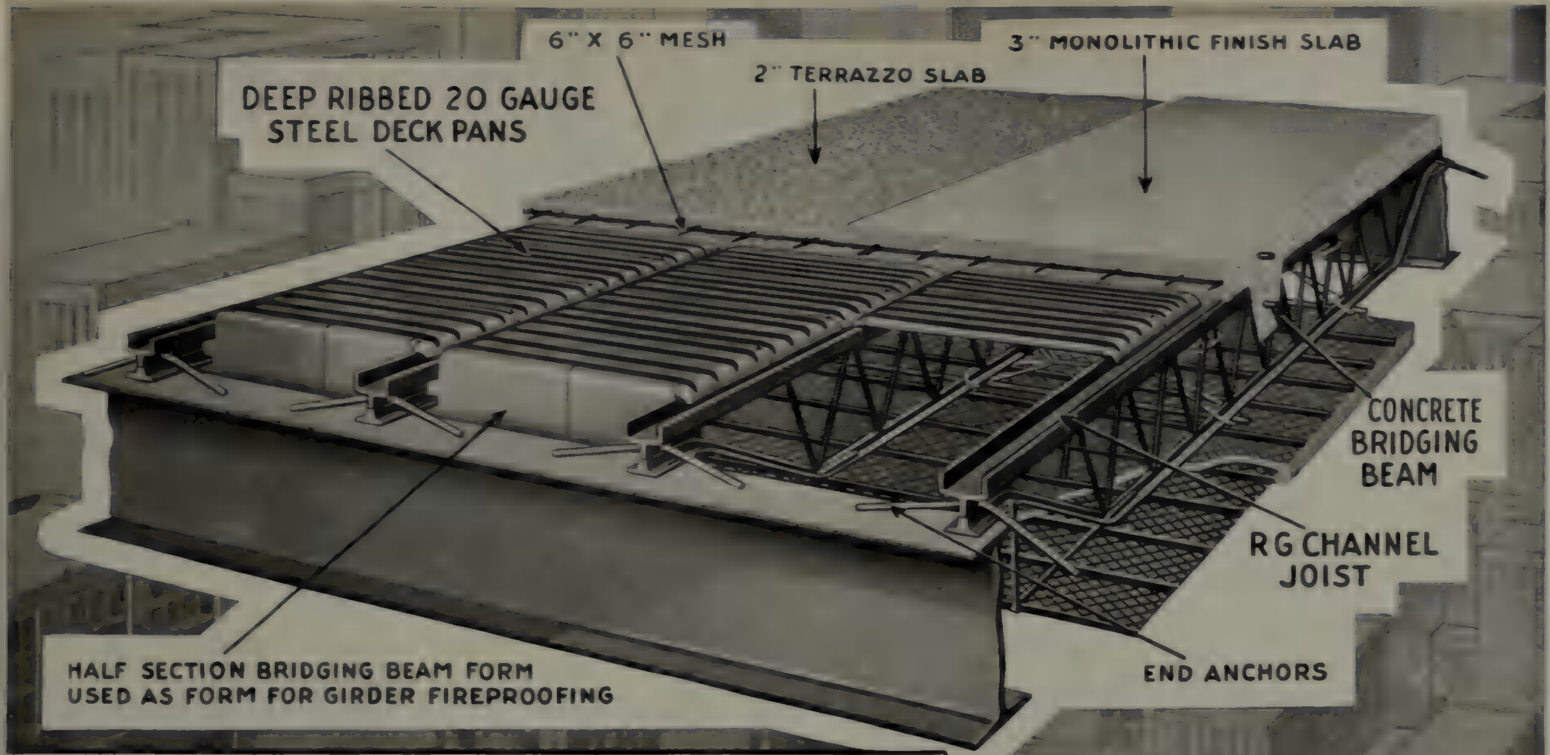
The Sterick Building, Memphis, Tenn. Wyatt C. Hedrick, Inc., Architects and Engineers. Doors, frames and trim are baked bronze enamel of special shade to meet the architect's requirements.

Helping Architect and Contractor Fulfill Their Pledges . . . .

In the new Sterick Building at Memphis, Thorp installed 132 sets of elevator enclosures without the slightest delay to any other trades. We mention this, not because it is an exceptional record for Thorp, but because we wish to emphasize how vital to the building schedule are prompt delivery, and smooth, efficient installation. A manufacturer should be chosen as much for his capacity for meeting his promises, as for his ability to turn out a fine piece of work. Thorp can do both.

THORP FIRE PROOF DOOR CO., MINNEAPOLIS, MINN.

Specify **THORP DOORS**


6" X 6" MESH
3" MONOLITHIC FINISH SLAB
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CONCRETE BRIDGING BEAM
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A New Steel Deck Floor Construction That Makes for Unusual Building Economies

COINCIDENT with the trend toward the elimination of *useless dead weight* in building construction, Rivet-Grip announces RG Steel Deck Floor Construction—a low dead weight construction for floors and roofs that makes for some appreciable structural economies.

RG Steel Deck Floor Construction provides a structural floor weighing only 6 pounds per square foot—a minimum saving of 30 pounds per square foot or approximately 5 tons per panel per floor over other types of floors in a typical skyscraper construction.

Extremely light in weight, RG Floor Construction possesses an extreme rigidity not found in ordinary construction. Concrete bridging beams in the center of every floor panel provide an exceptional degree of stiffness. This feature combined with twenty gauge solidly interlocked steel deck pans, rigid steel joists, heavy web members and sturdy chord members, completely eliminates all vibration or springiness. With RG Floor Construction, evaporation downwards is prevented, producing an extremely high-strength slab. In addition the top of the slab may be tamped giving a better, harder wearing surface than is found with ordinary monolithic finishes.

Write for cost estimate or further detailed information.

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STEEL DECK RG FLOOR CONSTRUCTION

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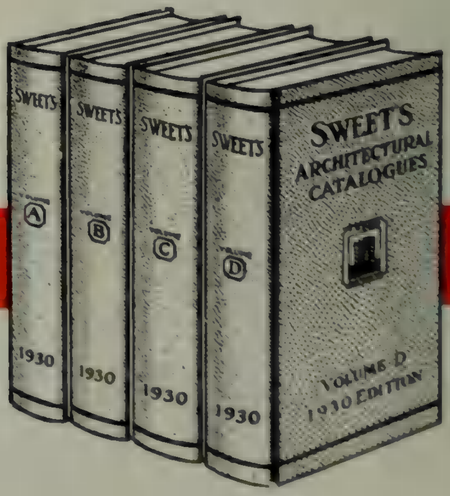
The continued cooperation of architects, general building contractors and building product manufacturers will enable Sweet's Catalogue Service to make further progress in combining ideal methods with practical results.

Sweet's Architectural Catalogues



The art
OF MAKING
a house a *home*

YOU bear a large share of the responsibility, you men who plan the buildings of your clients. Yours is the art of making a house more than a shelter—the art of making it a *home.*

The burden is lighter, the satisfaction greater when the plans you put on paper materialize into a cozy, comfortable healthful home. And the realization of this ideal is easier and simpler, more certain of being just the right thing if you specify Williams Oil-O-Matic—Model J for large homes, Oil-O-Matic Junior for homes of moderate size.

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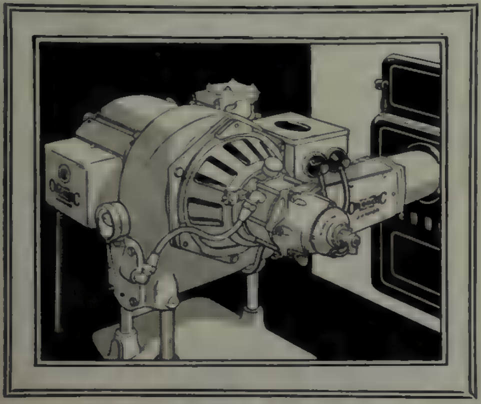

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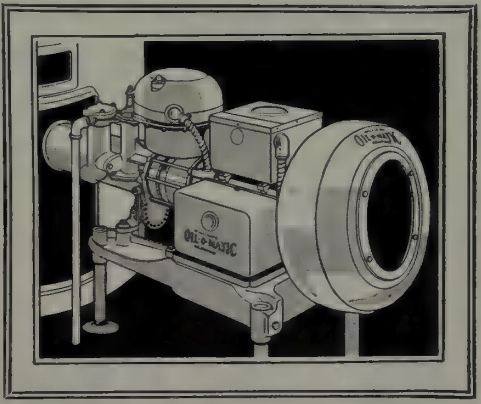
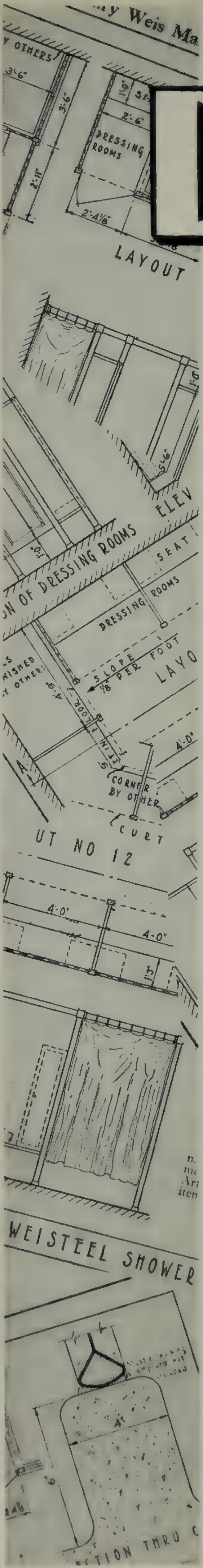


Williams Oil-O-Matic Model J

WILLIAMS OIL-O-MATIC
HEATING CORPORATION
Bloomington, Illinois



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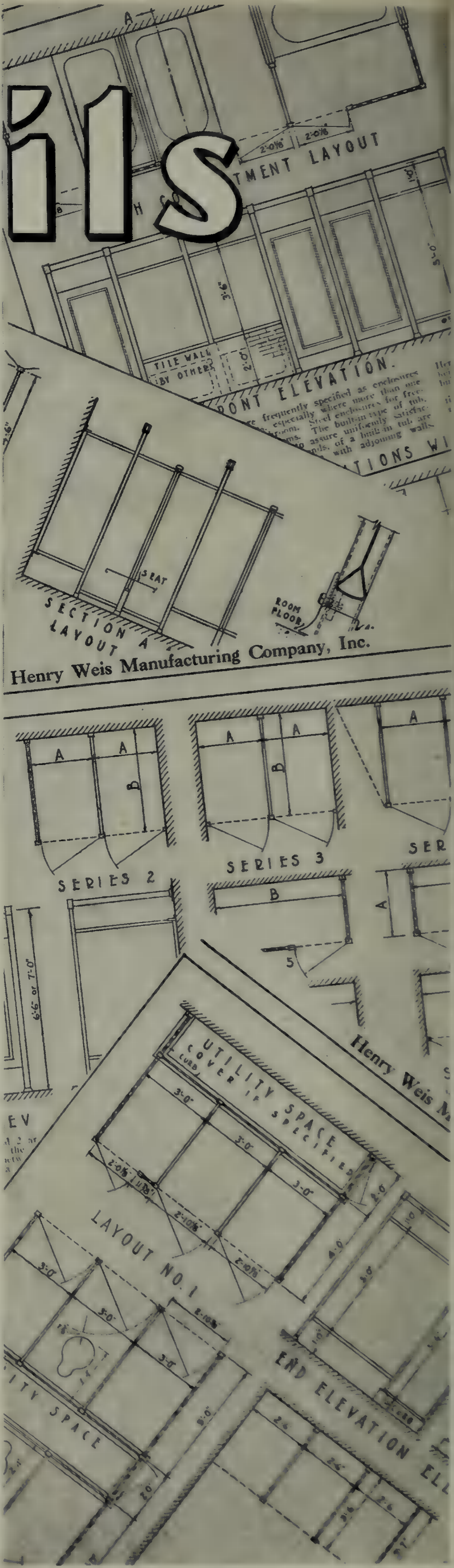
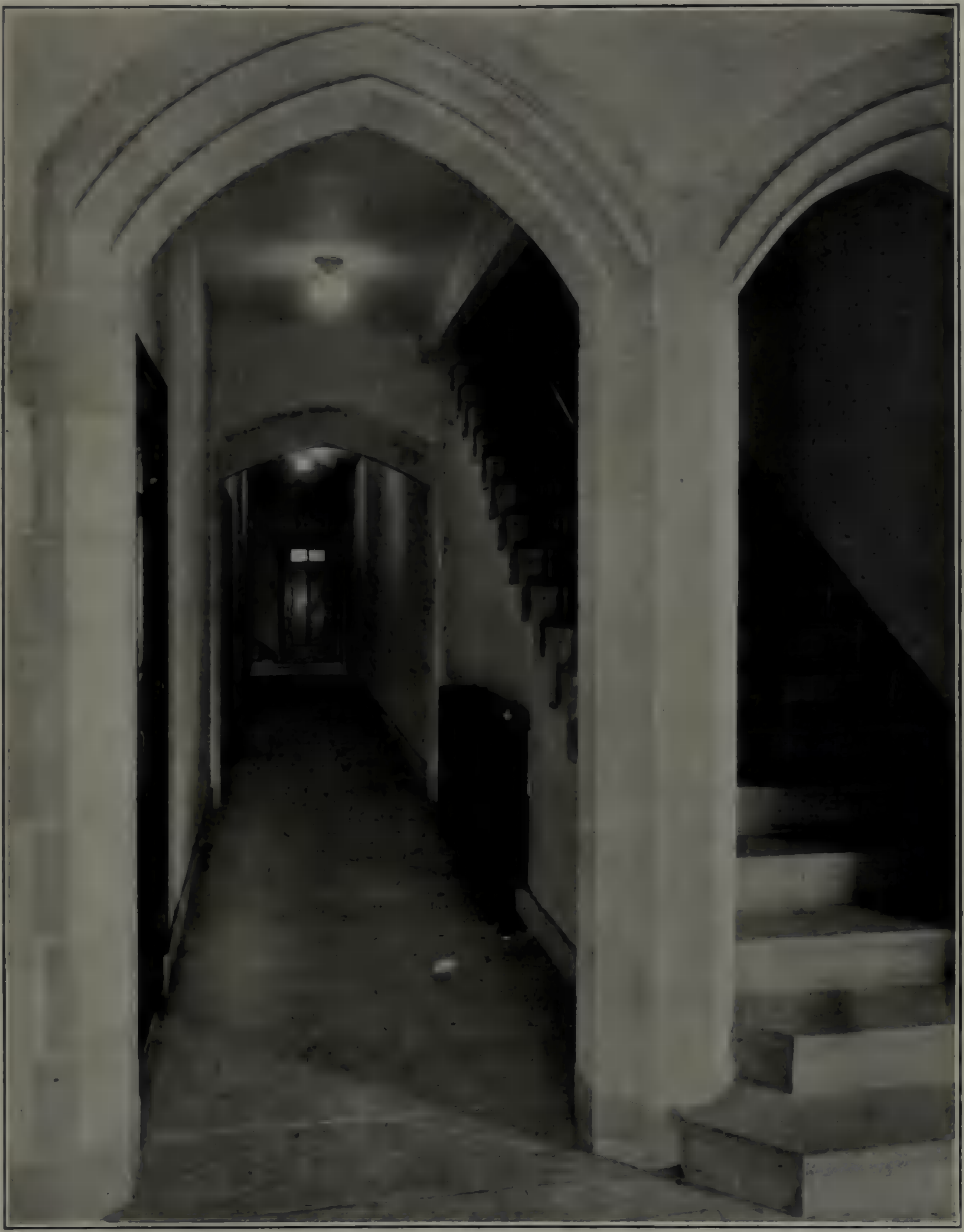
WEISTEEL



ALBERENE STONE FLOORS — TREADS — BASE



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In the creation of fact-wealth modern business papers play a dominant part. Back of the roaring pressrooms as they pile up fact-wealth in printed form are the news staffs, gathering information at the source, and the editorial staffs, checking and correlating that information. For the business paper's knowledge must be correct + + its readers are experts; they are swift to detect error; they are prompt to appreciate fact. They follow both its reading and its advertising pages intently, for to them the business paper is a very real source of wealth.

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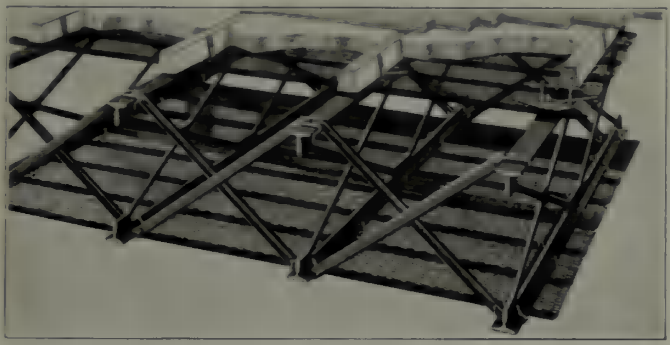

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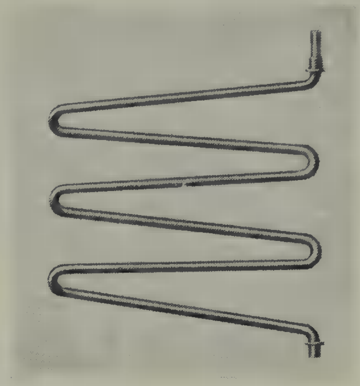
And That's Just One Reason Why Bryan Is More Economical



AT LEFT: *One of the many copper-tube sections which are the keystone of Bryan Boiler performance. These sections break the water into small streams which are driven through the hottest part of the boiler at a very rapid rate, thus absorbing and delivering to dome and radiation more heat in a given time than any other type of boiler.*

NEXT to gold, the copper used in Bryan Boiler sections is the most efficient conductor of heat known—capable of absorbing and transmitting heat nearly eight times as fast as cast-iron . . . Added to this are physical properties which fit it ideally for boiler use—flexibility which permits it to withstand the shock of sudden, intense heat; high tensile strength; extraordinary resistance to rust and corrosion.

In designing the new type of boiler which the oil-burner demanded for heating efficiency and economy, Bryan has taken full advantage of these superiorities of copper.

In the Bryan Boiler, a multitude of small copper tube sections are placed directly in the path of heat-travel, where they absorb the heat as fast as the oil-burner can produce it. The Bryan Boiler marks a big advance in boiler efficiency, as shown by the fact that Bryan stack temperatures average only about 300 degrees, with a combustion chamber temperature of 1500 degrees.

Copper-tubes, however, constitute only one of the features from which Bryan Boilers derive their extraordinary efficiency. In addition to the usual technical data, A.I.A. File No. 30C1, recently issued, tells clearly why the Bryan Boiler is more efficient and more economical wherever the convenience of automatic oil or gas heat is desired. If you do not have this File, we shall be glad to forward it to you if you will write.

BRYAN STEAM CORPORATION
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BOILERS

The Textile Industry

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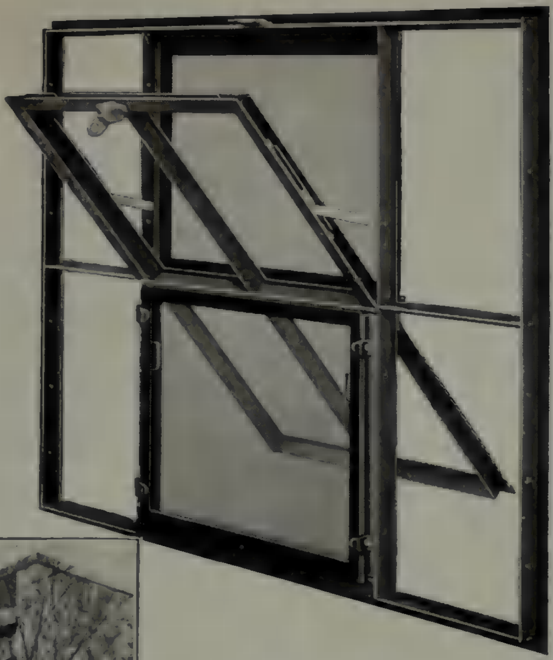
Bayley Pivoted Windows Screened



The Scranton Lace Co. Scranton, Pa. Designed and Built by Morton C. Tuttle Co., Engineers, Boston

RECOGNIZING their outstanding advantages in solving ventilation problems, the textile industry, in common with other industries, is using Bayley Pivoted Windows Screened in a large way. Adequate, controlled and screened ventilation is thus assured, and flying insects — apt to fall into delicate products and force suspension of operations until damaged portions are removed—are kept out.

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LOW COST . . . quantity production on the Bayley standardized plan reduces first cost . . . and Bayley design and construction eliminate the usual upkeep expense . . .

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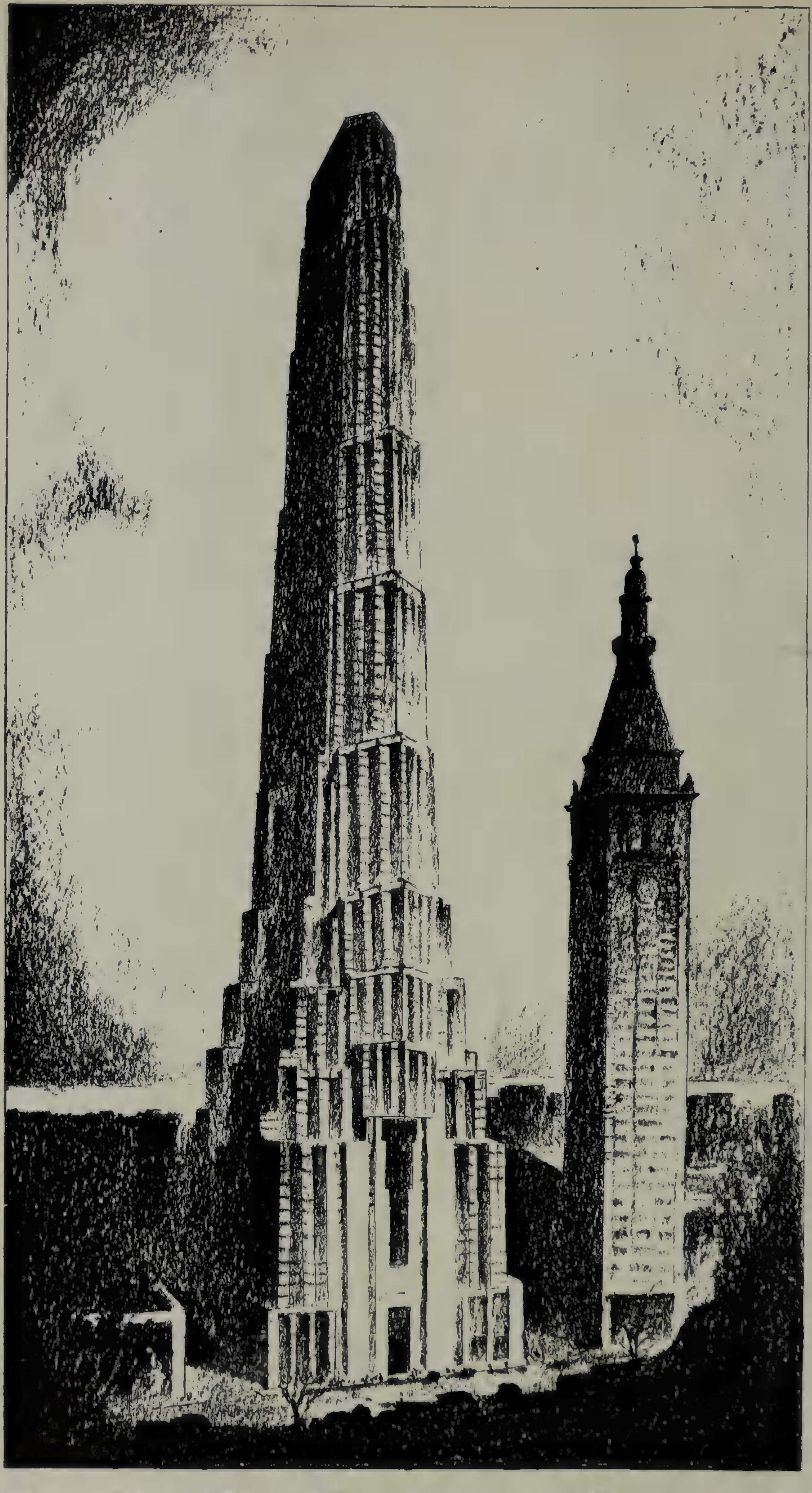

No. 10 of a series

—showing interesting examples of the trend of today in modernistic architectural design. The illustration shows the façade, facing west, of a projected hundred-story building for the Metropolitan Life, New York. Architect, D. Everett Waid, with Harvey Wiley Corbett as associate. The site of the proposed building adjoins the present Metropolitan Life Insurance Building

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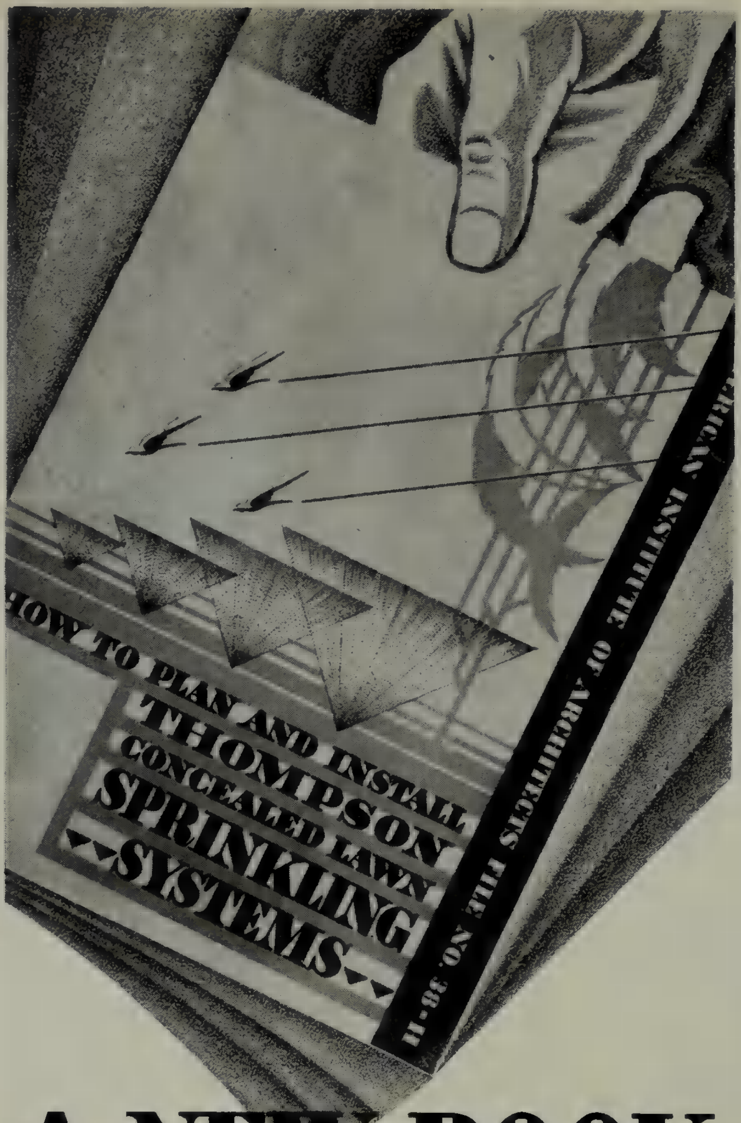
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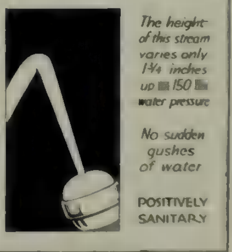
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No sudden gushes of water
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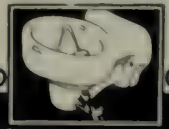

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PD-7

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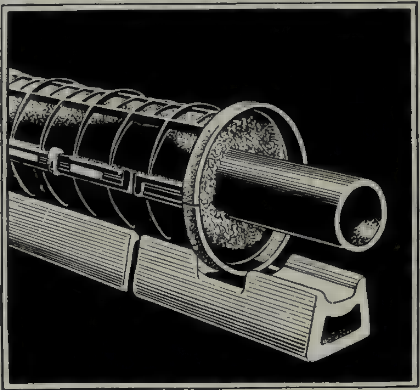

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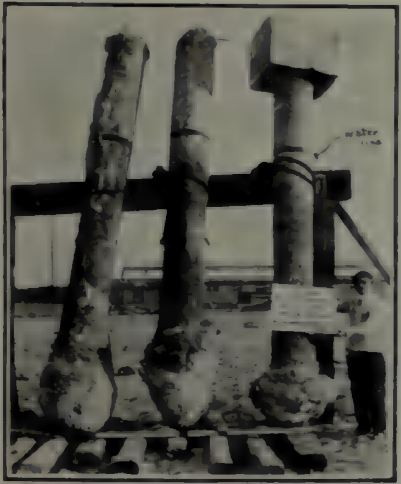

MacARTHUR, *Pedestal Type* Piles after one of them had supported 50 tons for 10 days without settlement. Note how compressing of concrete has enlarged shaft in pile at left to fill soft spot in soil.

Sandy Soil with a High Head of Water

Pedestal Type Pile, Practical and Economical

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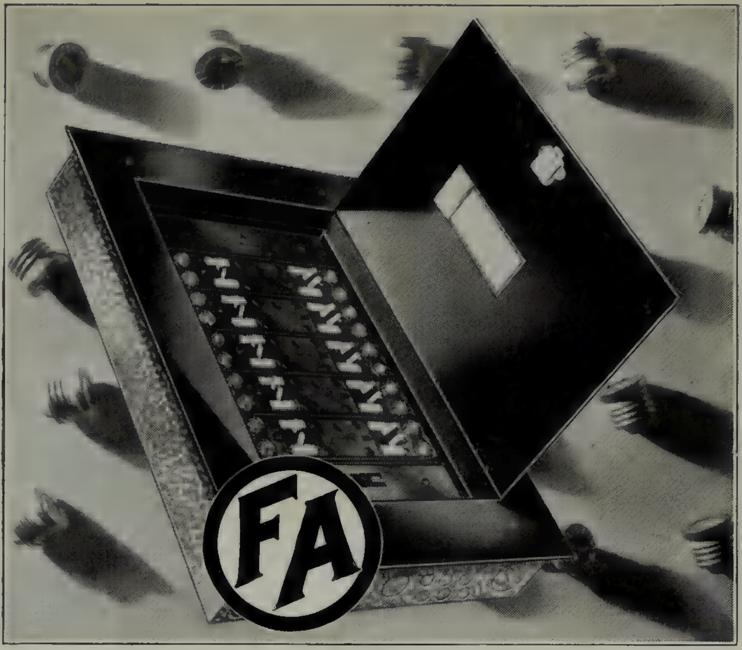

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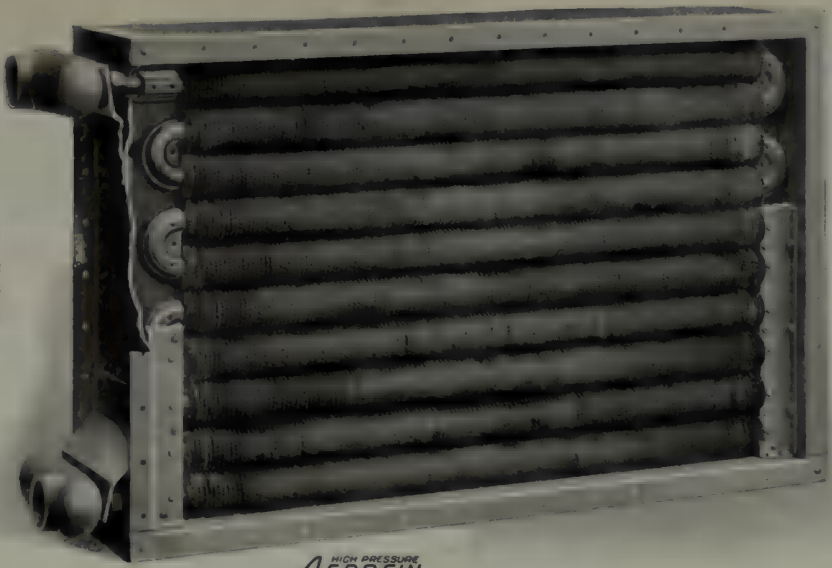

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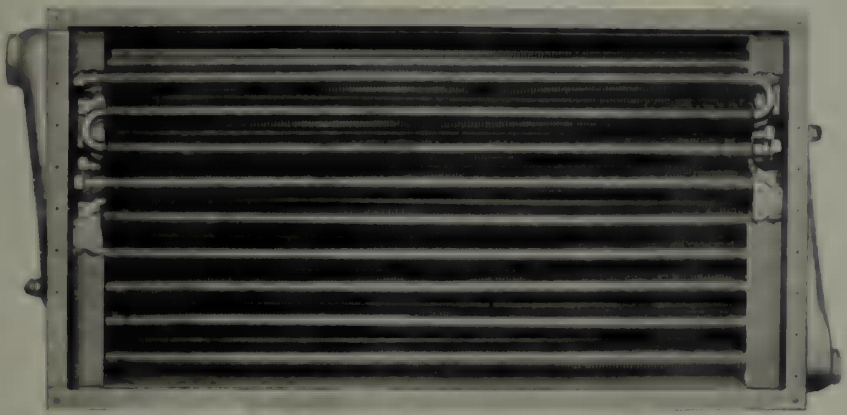

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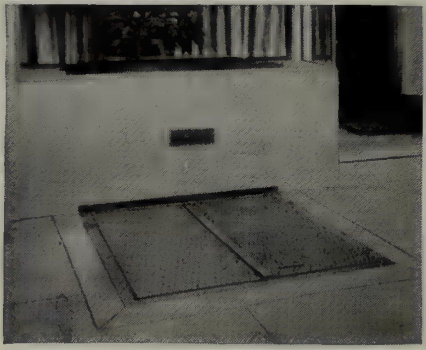

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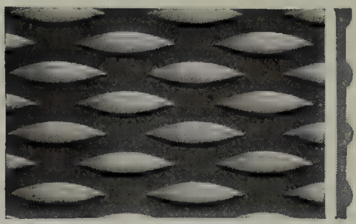

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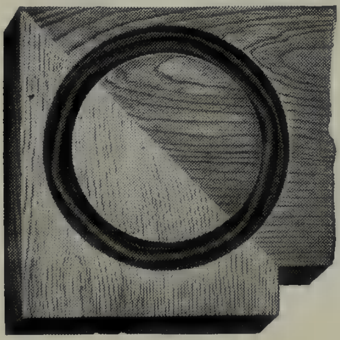

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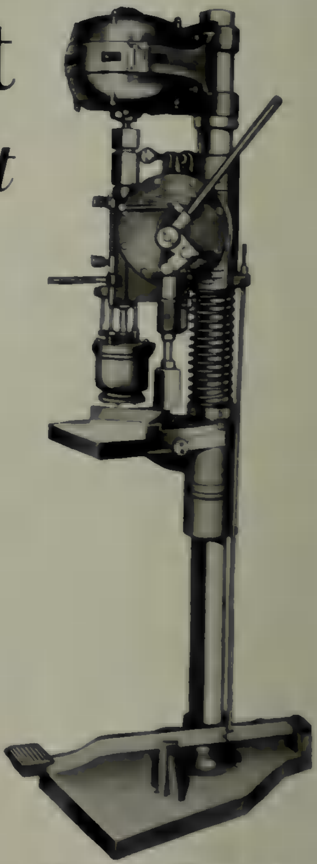

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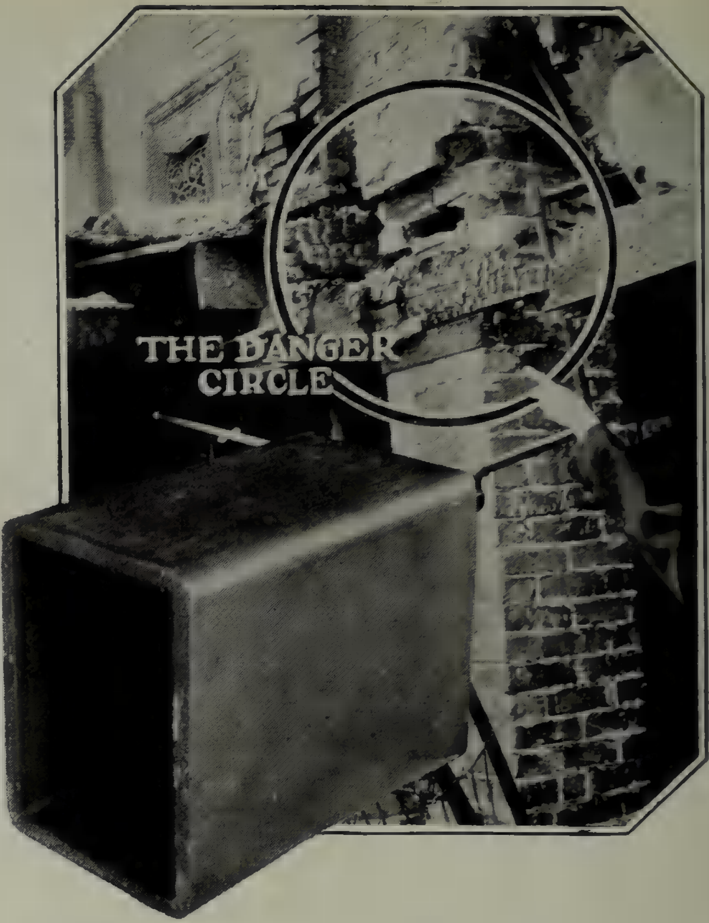

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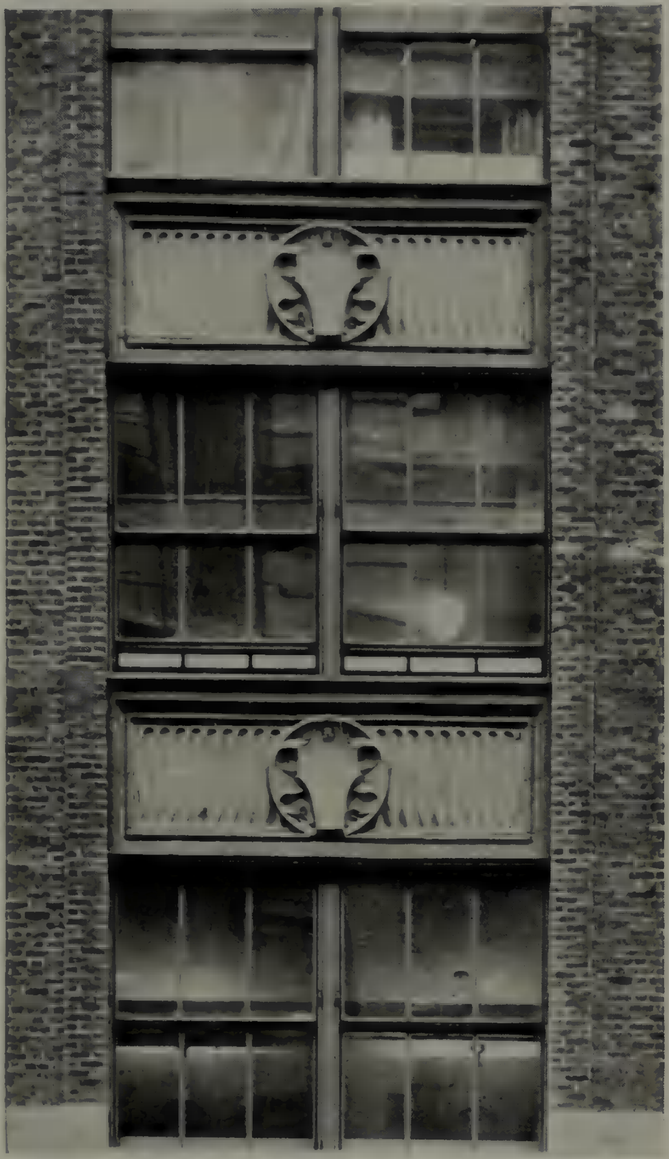

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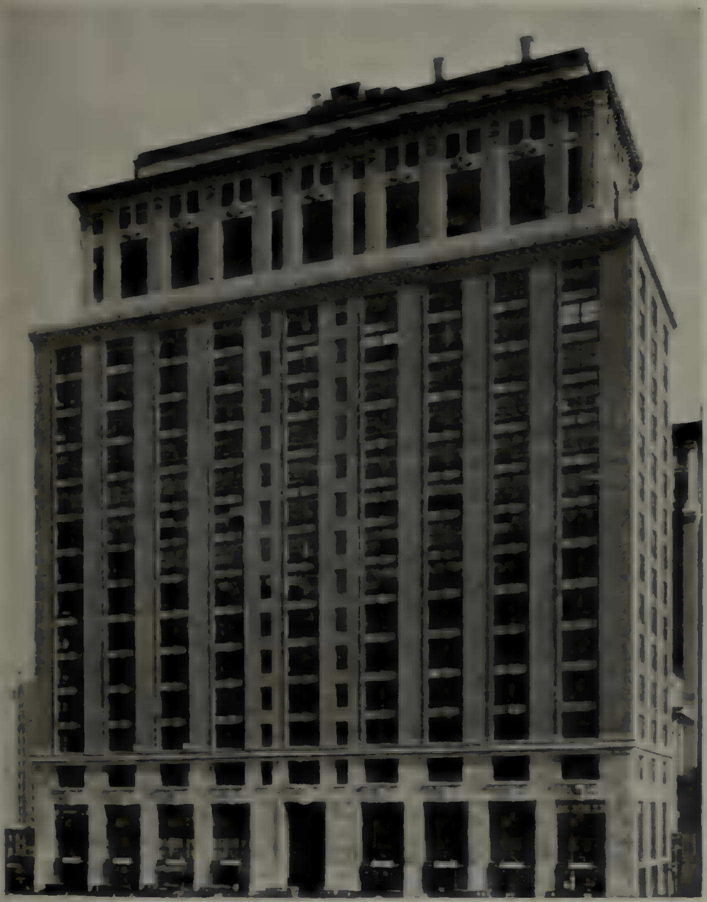

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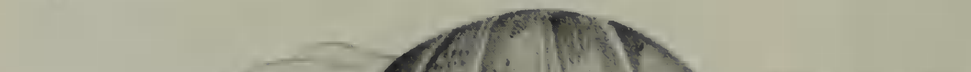

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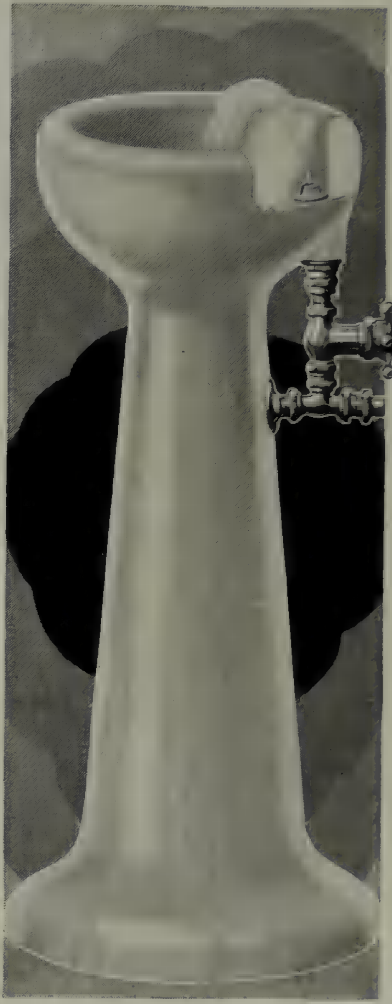

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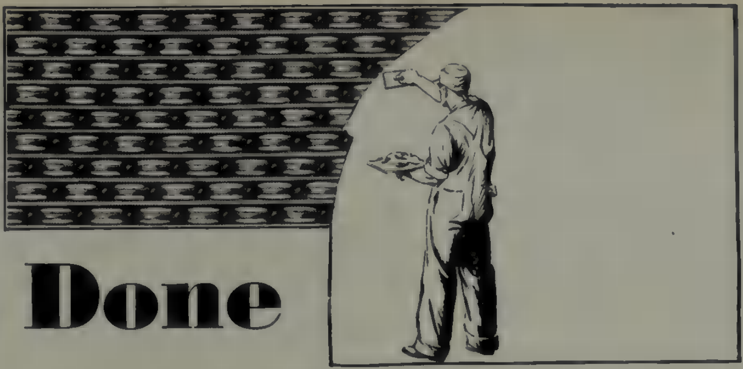

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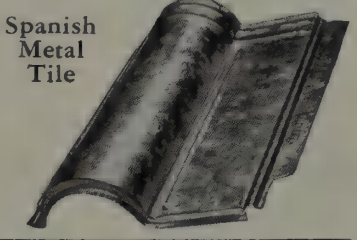

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We believe most authorities agree on this as evidenced by the great number of Pfaudler Glass-Lined Steel Laundry Chutes that have been installed.

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INSTALL PFAUDLER GLASS-LINED LAUNDRY CHUTES

Stronger More Sanitary

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Sound Insulated— and Mechanically Perfect

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FOLDED

THE uses for Circle A Folding Partitions are limitless. There are two styles, and four surface treatments. Wherever effective subdivision is desired, there is a Circle A Folding Partition to completely suit the job.

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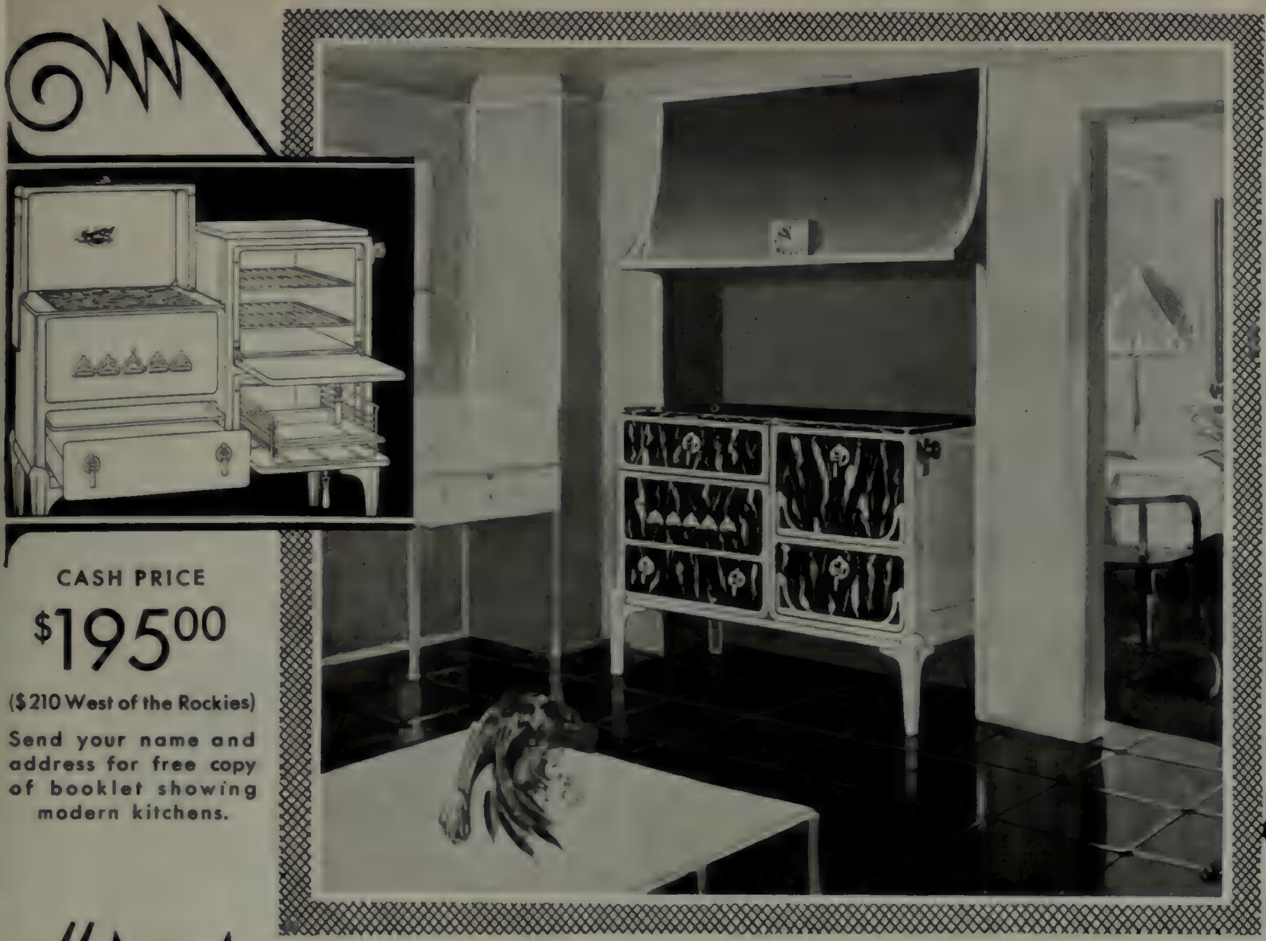

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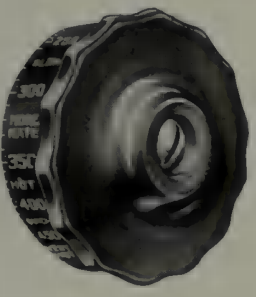

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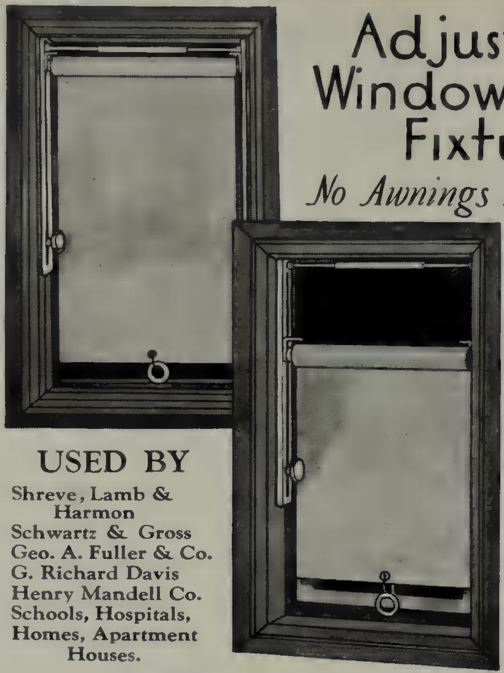

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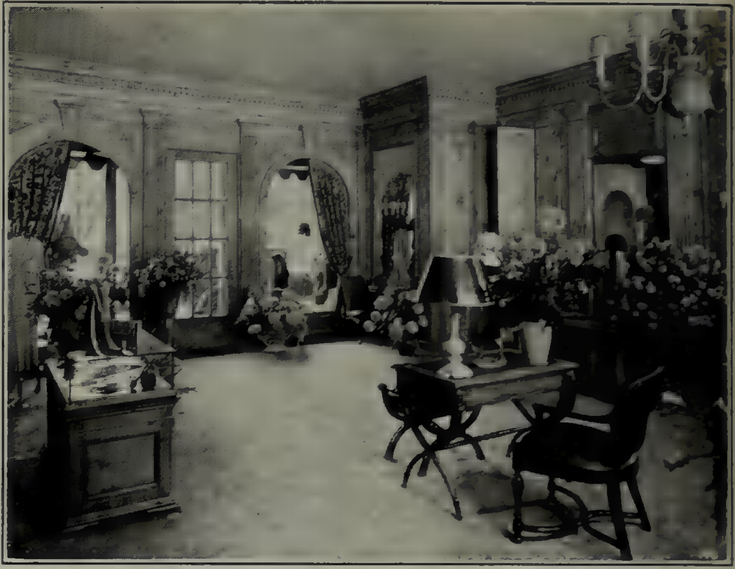

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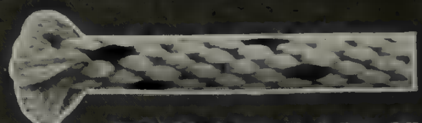

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IF. In the working day of the outside window cleaner—safety or tragedy—life or death revolve about that word. Small wonder that window cleaning is classified as one of the most hazardous of industrial occupations. Small wonder that wage rates and insurance rates combine to make this work a major item of expense in building maintenance.

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Clean Your Windows from the Inside

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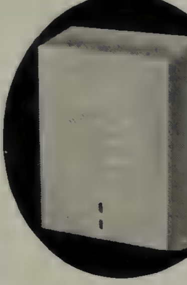

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The modern way to dispense toilet tissue is the cabinet way! That is why Victoria interfold tissues and dispensing cabinets are used in leading buildings everywhere. Victoria tissues are always dependable in quality. Our cabinets check waste and protect the tissue from dust and unsanitary handling. Write for full information. The Victoria Paper Mills Co., Fulton, N. Y.

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Water Mixing Valves

Thermostat control. Easy to operate, any flow at any temperature. Solid metal thermostat automatically maintains water temperatures.

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"MADE IN STEEL"

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Expert counsel in framing your specifications may be had by calling upon our nearest representative who is a specialist in theatrical lighting. His name is listed in the classified telephone directories of the cities below.

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Many generations ago, Time—That Tough Old Tester—began his fight with genuine puddled wrought iron. Against that sturdy metal of which Reading 5-point pipe is made, Time first used his most potent weapon, corrosion.

Year after year after year, Time poured his corrosive mixtures over and through 5-point pipe trying to set in action the destruction which men call rust. But no loop-holes could Time find—filaments of silicious slag barred the way. Only pipe made of genuine puddled wrought iron has proved that it can thus fight off the test of Time—the only conclusive pipe test known.

Make your first cost of pipe the last cost, avoiding damaging leaks, by insisting on Reading genuine puddled wrought iron pipe.

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5 POINT PIPE
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GENUINE PUDDLED WROUGHT IRON

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DIAMETERS RANGING FROM 1/8 TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

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EQUIPPED with an electro magnetic device which permits their complete and entire operation, including the control of four or more color frames, to be accomplished from a remote point. It is now possible to install a single group of spotlights that will give all the color variations obtained with several groups heretofore; or install the same number of spotlights, obtaining four or five times as much light for each color.

Write for Bulletin No. 3

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The Perfect Insulator

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Prospective home owners can greatly reduce the upkeep of their homes and add untold comfort by insisting that they be properly insulated.

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Mineral Wool is a sanitary, indestructible, entirely mineral material, easy to apply and low in cost.

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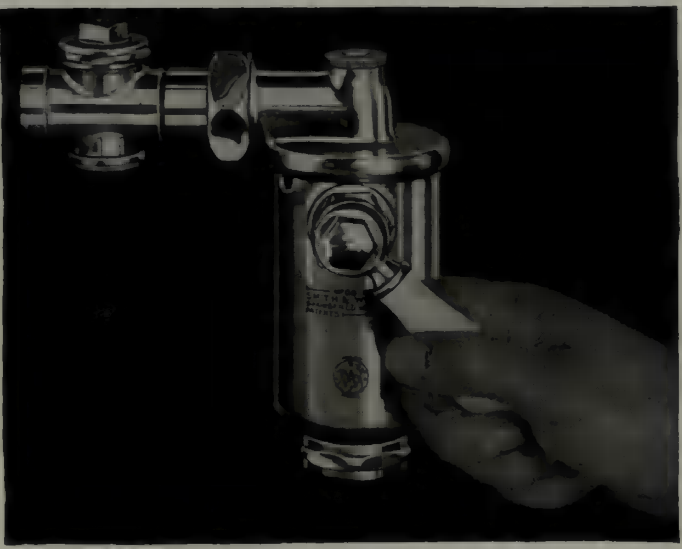
Smith & Wesson



An important point to be considered in flush valve satisfaction, is the ease with which the valve can be drained. The Smith & Wesson Flush Valve is readily drained by turning the stop cock at the valve and holding the valve handle open a few seconds.

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This "Drainability" shows the thoroughness with which Smith & Wesson have studied flush valve requirements.

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HAMLIN
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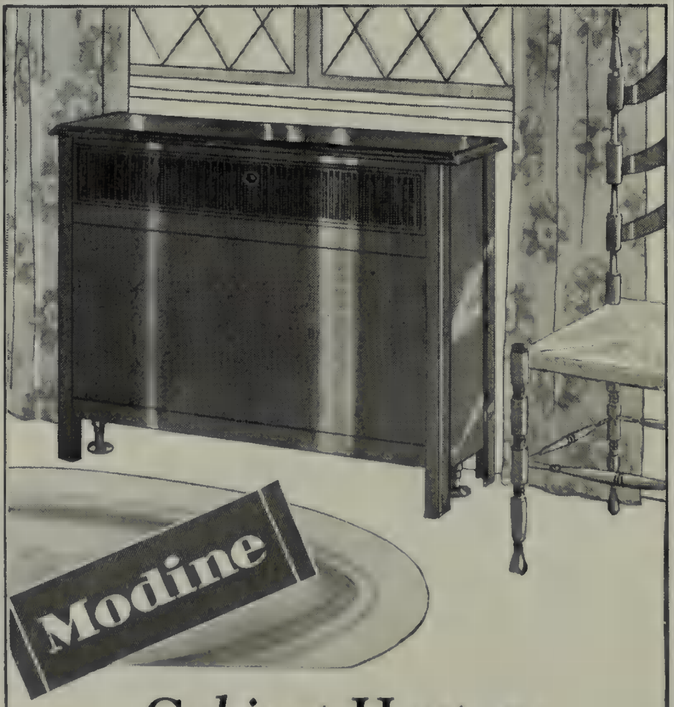

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— the modern copper radiation equipment that offers the combined advantages of better heating and better room appearance. Write for catalog.

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Invisible Hinges

(Good Taste + Strength)

Completely invisible when the door is closed. Flush doors—clean lines—no projections. Admittedly the ideal hinge for discriminating work.

A style for every use

See our catalog in Sweet's (pages 1578-9), or write direct to us for samples and complete catalog.

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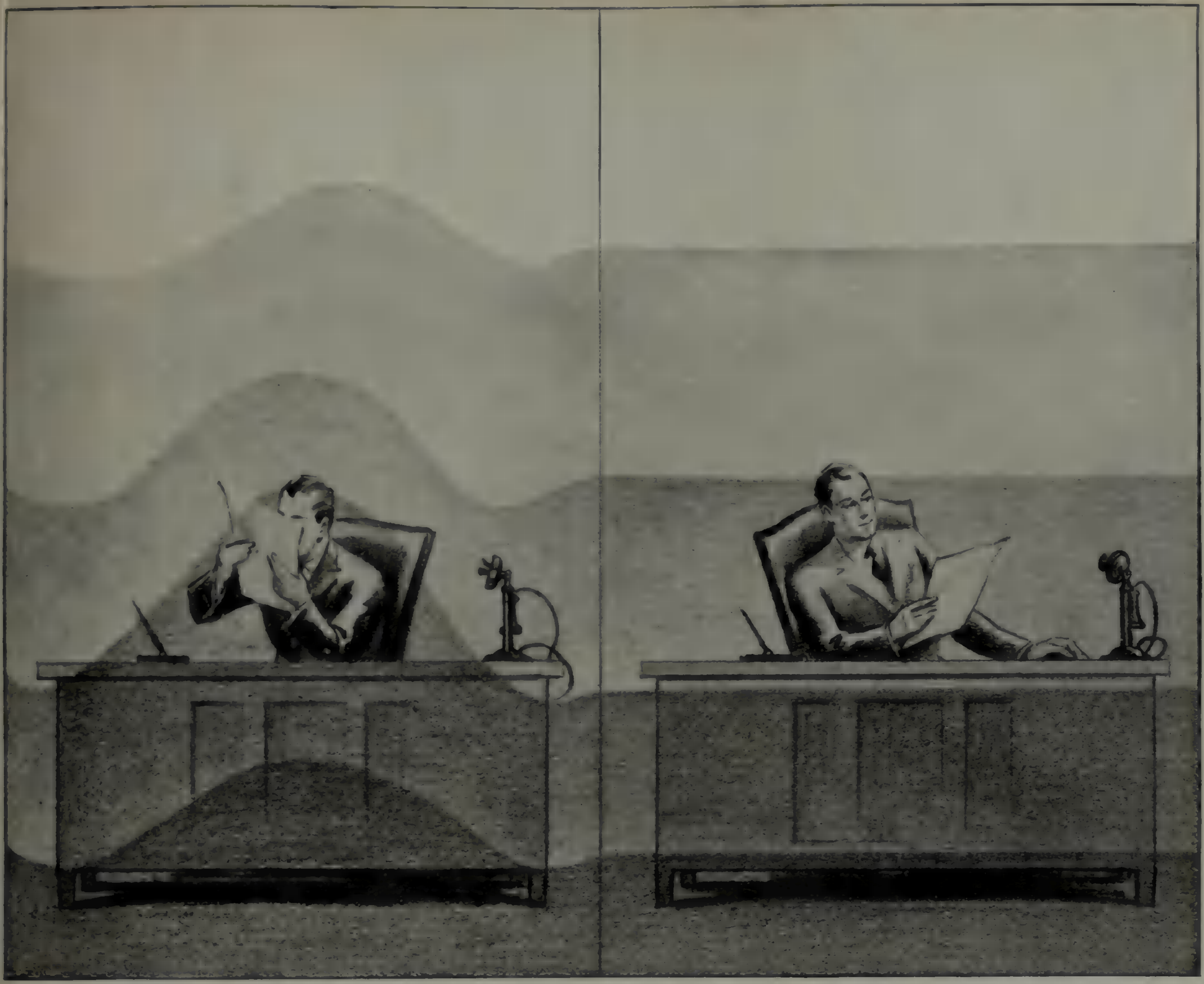

STRANGE WHAT LIGHT WILL DO
if you don't have
BALANCED LIGHTING

Strange as it may seem, high efficiency lighting units do not necessarily guarantee good lighting.

Otherwise excellent lighting units may be so misapplied as to cause costly eyestrain and expensive errors—which is just what good lighting should *not* do.

But lighting, however, may be scientifically planned in advance to avoid these undesirable surprises.

Experience has shown the most useful lighting to be an adjustment of variable quantities—in a fixture, the *balance* of lighting factors against its requirements. Eight points are here involved, as the table shows.

From this comes Balanced Lighting, the key-note of the Graybar Lighting Line — the yardstick employed by Graybar Lighting Engineers in selecting, from all types of fixtures, *the* best fixture for a given purpose.

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FOR BALANCED LIGHTING, WEIGH:

Horizontal Light *vs.*	Reflected Glare
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Showing how various factors balance, for best results in any given case

The Lincrest, with screw type holder. A popular, inexpensive fixture . . . but only one of many Graybar fixtures.

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Gentlemen: We are interested in knowing more about BALANCED LIGHTING.

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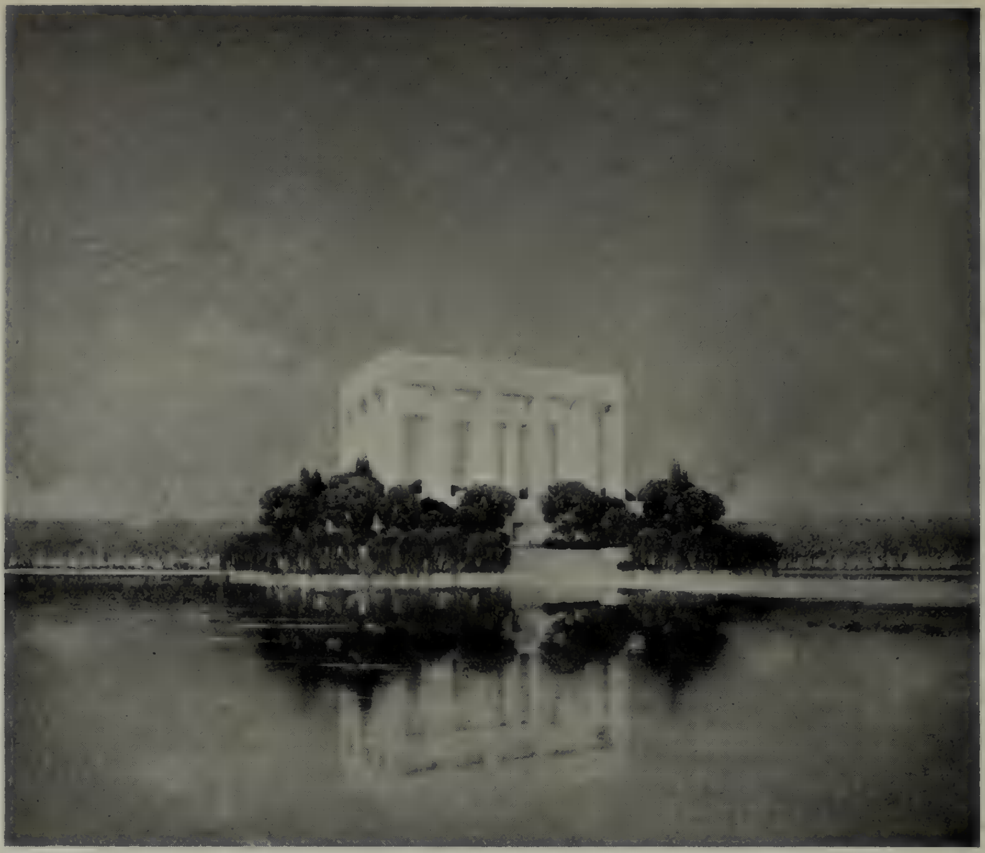


FIRST PRIZE

CHICAGO WAR MEMORIAL

ERIC GUGLER AND ROGER BAILEY

"The feeling of the Jury was that this solution gave a response which satisfied not only the monumental demands of the program, but . . . created an enclosed space in which the sarcophagus, had the dignity of resting in the seclusion created by the surrounding collonade.

NOTES IN BRIEF

CHICAGO WAR MEMORIAL

As a matter of record, the winners of the Chicago War Memorial Competition were as follows:—

First prize—Eric Gugler and Roger Bailey, New York; second prize—Benjamin H. Marshall; unofficial awards—Voorhees, Gmelin and Walker, and Nimmons, Carr and Wright.

No competition of the year had so many entries, nor had any other a more generous financial award and honor.

Disappointment

The solutions receiving recognition do not arouse consciousness of notable achievement or startling originality. With one or two exceptions the designs are singularly conventional and scarcely rise above the average of the student Beaux-Art competitions excepting in their more impressive rendering. There will be full agreement with the findings of the Jury in their selection of the design which satisfies the "monumental demands of the program"—a solution that has "a strong spiritual appeal" and that "creates an enclosed space." Disappointment lingers because the competition did not bring forth a less inevitable and more truly original or grand conception, at least rivalling the results of the Chicago *Tribune* Competition. Perhaps, competitions cramp the originality of the designer.

CORRECTION

On page 85 of the January issue the name of the architect of the Caddo Parish Court House at New Orleans was given as Edward F. "Weild" instead of *Neild*. We are sorry.

THIRD A. W. BROWN TRAVELLING SCHOLARSHIP

Announcement has been made of the third competition for the A. W. Brown Travelling Scholarship. Programs will be mailed to approved applicants about March 14, drawings to be delivered on or about April 14, 1930.

The value of the scholarship is $2,000, to apply to expenses of a year of study and travel in Europe. Second place will carry an award of $250; third place, $150; fourth place $100. The competition is directed by a committee of the A. I. A., consisting of J. Monroe Hewlett, Charles Butler, and William Dewey Foster. The jury will consist of practising architects chosen by the committee.

The competition is open to any architect or architectural draftsman who is a citizen and resident of the United States; who has never been the beneficiary of any other European scholarship; who has passed his twenty-second but has not passed his thirty-second birthday on May 1, 1930; and who has been in active practice or employed in the offices of practising architects for at least six years, or, if a graduate of an architectural school, at least two years since graduation.

The beneficiary will be required to complete, during his European study, at least two envois, which shall consist of measured drawings of buildings on which burnt clay has been used for roofing. Other than this there will be no restrictions as to the type of architecture that shall be studied.

The scholarship is the gift of the Ludowici-Celadon Company, and is a memorial to the late A. W. Brown, for many years president of the company.

Address inquiries to Wm. Dewey Foster, 25 West 45th Street, New York City.

(*Continued on page 176*)

22 *empty apartments . . .*

AMERICAN RADIATOR WARMTH rented them all *and gave the landlord* $735 A MONTH BESIDES

HERE is a true story that tells why American Radiator warmth is one of the greatest sales influences that you can add to any building. In the two buildings above there are 105 apartments. For one year 22 of them were vacant and many more tenants were threatening to move unless old-fashioned heating equipment was replaced by modern radiator warmth.

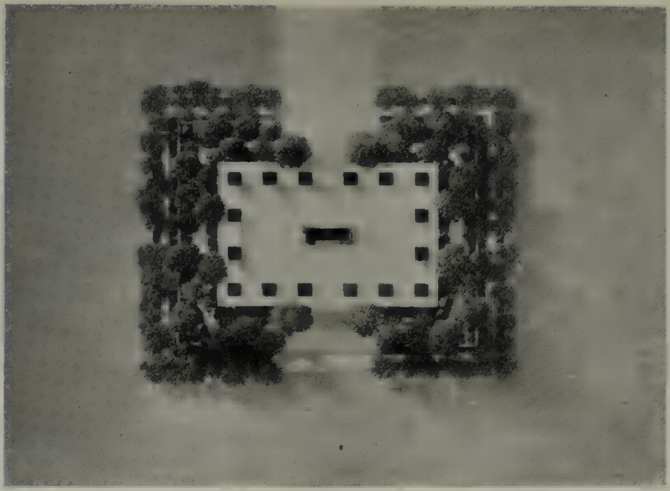
In both apartments Ideal Boilers and American Corto Radiation were installed at a total cost of $16,000. Today every apartment in both buildings is rented and every tenant has agreed to an increase of $7 a month in rent. This means that in less than a year the entire installation will pay for itself and the landlord will continue to get an increased income of $735 every month.

An "All-American" job is a real investment, not an expense.

Write for details of partial payment plan.

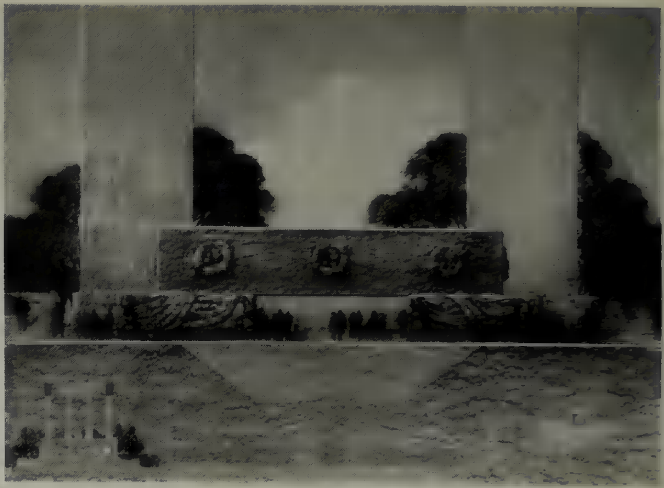
AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET, NEW YORK
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



PLAN

FIRST PRIZE
CHICAGO WAR MEMORIAL
ERIC GUGLER AND ROGER BAILEY



DETAIL

FIRST PRIZE
CHICAGO WAR MEMORIAL
ERIC GUGLER AND ROGER BAILEY

HARVARD INVESTIGATES BUILDING HEIGHTS, RESIDENTIAL CROWDING, AND LEGAL ASPECTS OF MUNICIPAL AIRPORTS

Three research projects, one as to the height of buildings, a second on the density of residential distribution, and a third as to the legal aspects of municipal airports, have just been undertaken by the new Harvard School of City Planning.

To carry on these projects three men outstanding in the work of city planning in this country have been called on. Mr. George B. Ford, architect, a past president of the American City Planning Institute and vice-president of the Technical Advisory Corporation, will undertake the investigation of "What zoning has done to limit the height and bulk of buildings, especially in commercial and apartment districts, and what further limits should be placed on building height and form."

Mr. Robert Whitten, city planning consultant, president of the American City Planning Institute, will investigate the question of "Optimum densities for residential distribution under zoning and platting." Mr. Whitten, who has been responsible for particularly comprehensive zoning and thoroughfare planning in Boston, Cleveland, Denver, Providence, and other cities, will endeavor to determine particularly how sparsely population may be spread and still meet the cost of complete city improvements and adequate housing. Any new light which can be thrown on this subject will be of immediate benefit to realtors, to land owners and so to the ultimate consumer, the individual householder.

Mr. Frank B. Williams, author of *The Law of City Planning and Zoning*, will investigate "The legal aspects of municipal airports." As a lawyer in the field of city planning, Mr. Williams has received commissions to investigate the legal aspects of almost all branches of city planning from time to time. He is a member of the Board of Directors of the National Conference of City Planning, a member of the Board of Governors of the American City Planning Institute, was a member of the staff of the New York City Heights of Buildings Commission, and was sent abroad by the city of New York in 1913 to investigate building regulations and zoning. He also carried out a research as to the laws relating to land under navigable water for the Regional Plan of New York.

The great and increasing development of air transportation has raised questions as to air ownership and air rights and as to the duties of the community in regulating activity in the air, questions which are by no means capable of immediate solution by reference to the legal precedents of the past.

In this research Mr. Williams is cooperating with Dr. Miller McClintock and Professor Henry V. Hubbard, who are together undertaking a research financed by the Milton Fund of Harvard University. Dr. McClintock is considering the problems of the airport as relating to municipal government and Professor Hubbard is considering the airport as a unit in the city plan. These three researches necessarily go together and the results should be of very immediate value from many different angles. The results of the researches will be published and made available to all workers in the field of city planning.

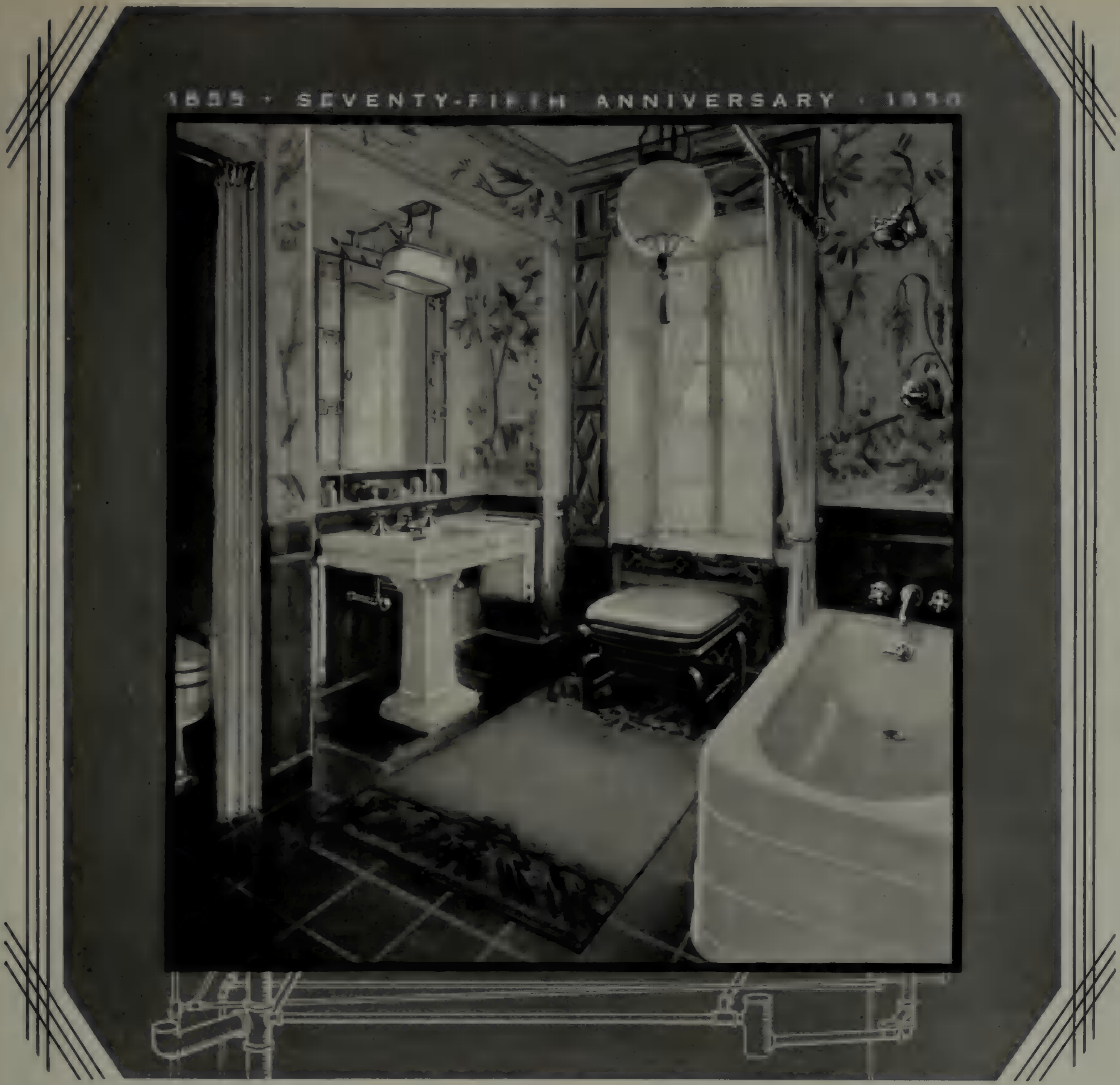
PUBLIC BIDDING: BELATED REGULATIONS?

It is reported that there will be introduced at the next session of the New York Legislature a bill to secure a State Law to make more rigid the requirements for a contractor when bidding on public work.

The qualifications appear to be complete when the contractor submits, with his bid, a certified check representing 5% of the amount of the security and when the award is made to get a bonding company to furnish the necessary security bond which is not difficult to secure.

"This," states William H. Gompert, former architect and superintendent of school buildings, "is an entirely inadequate provision, and a further qualification of responsibility should be length of time in business, size and magnitude of work previously performed. Besides this a contractor should be able to present a good record both as to time of completion and character of work on previous contracts executed for private parties as well as for the City.

"The establishment of responsibility might be determined by a method of rating, similar to systems employed in Civil Service."



EVEN Sarah Bernhardt, who threatened to sue a hotel because an uninviting bathroom spoiled her day and her evening performance, would have been charmed by the beauty of this typical Crane room. Even the most frugal will be delighted by the economy with which this beauty is here offered to American home builders. The *Corwith* bath with overhead shower, the *Norwich* lavatory, the *Santon* closet, all new fixtures full of character, cost no more than clumsy ones. The fixtures can be had in any one of a dozen delicate hues, with only a fraction added to the complete cost of a bathroom. The decorations . . . linoleum for the floor, canvased wainscot, papered walls . . . actually can be carried out for less than it would cost to build a stereotyped room. For a book giving the floor plans, color schemes, and full information concerning twelve such beautiful rooms, write for *Bathrooms for Out-of-the-Ordinary Homes*. Among them you may find some ideas which will be of real worth to your clients.

Valves CRANE *Fittings*

FIXTURES, VALVES, FITTINGS, AND PIPING, FOR DOMESTIC AND INDUSTRIAL USE

Crane Co., General Offices: 836 S. Michigan Ave., Chicago ✦ 23 W. 44th St., New York ✦ Branches and sales offices in [illegible] hundred and ninety cities

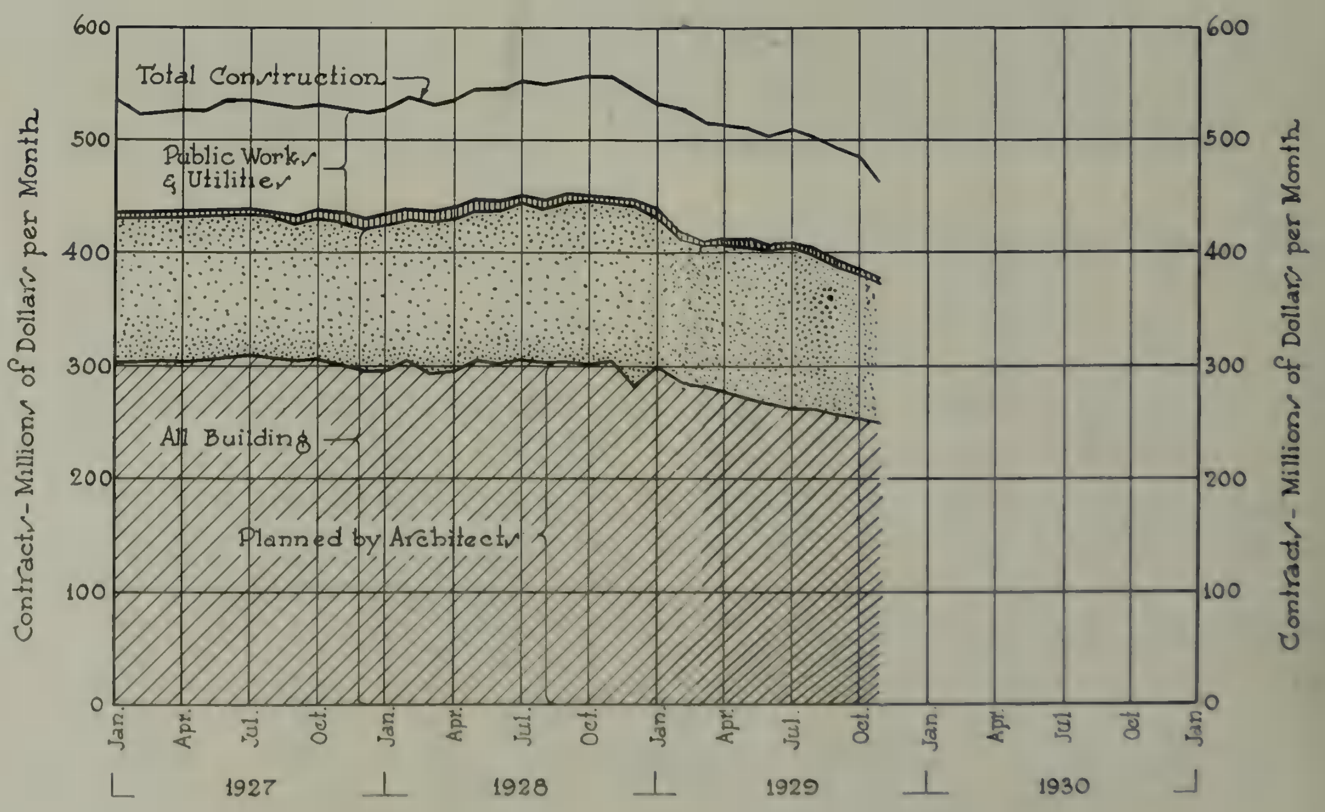
CONSTRUCTION STATISTICS

From the records of F. W. Dodge Corporation, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent of the country's construction volume.

First Eleven Months, 1929

	TOTAL CONTRACTS		WORK PLANNED BY ARCHITECTS		
	Number of Projects	Valuation	Number of Projects	Valuation	Per Cent of Total
Commercial Buildings	22,828	$ 899,296,300	9,613	$ 693,169,200	77
Industrial Buildings	6,263	689,120,000	2,181	180,439,400	26
Educational Buildings	4,338	362,066,200	3,491	345,736,200	95
Hospitals and Institutions	1,121	146,056,300	835	131,528,400	90
Public Buildings	1,240	114,070,200	717	105,034,500	92
Religious and Memorial	2,157	100,493,700	1,526	89,018,600	89
Social and Recreational	2,356	128,621,300	1,430	104,364,000	81
Residential Buildings	106,318	1,801,677,700	27,050	1,088,521,100	62
Total Building	146,621	4,241,401,700	46,843	2,737,811,400	65
Public Works and Utilities	18,270	1,196,520,700	335	33,494,100	3
Total Construction	164,891	5,437,922,400	47,178	2,771,305,500	51
Total Construction, first eleven months, 1928	200,255	6,628,286,100	59,956	3,639,018,800	55

* * *

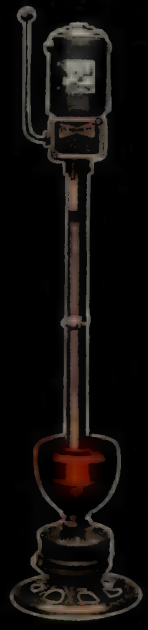


TO REMOVE SEEPAGE WATER

Select the pump that suits the particular conditions--- Don't try to suit the conditions to a particular pump

COPPER AND BRONZE THROUGHOUT

PENBERTHY PRODUCTS



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$50 LIST

Nº 2G
$70 LIST

Nº 3G
$100 LIST

Nº 4G
$125 LIST

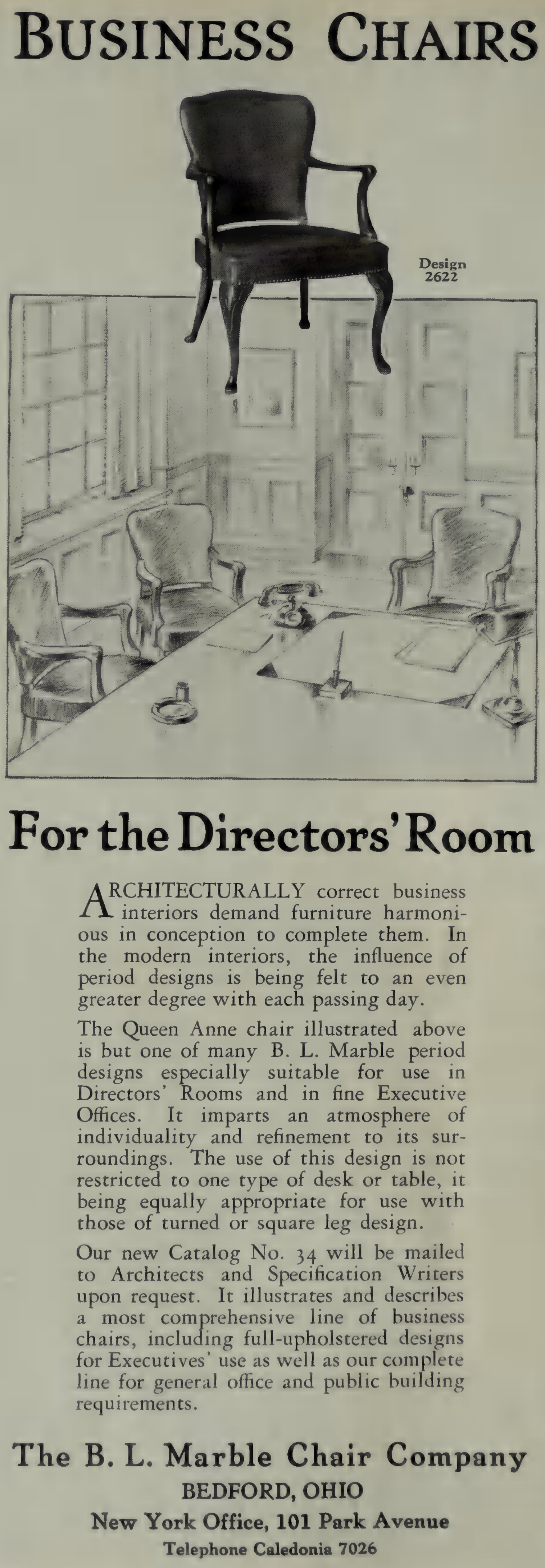
THIS suggestion is in the interest of satisfactory performance and economy in both the first cost and operation. The complete range of both electric and water operated pumps offered by Penberthy makes it possible for you to select a unit that will assure a well satisfied customer.

These Penberthy Pumps are carried in stock by leading jobbers everywhere. Sump Covers for all sizes are available at slightly additional cost.

MODEL R
NOS. 1 & 2
(WATER OPERATED)

MODEL L
NOS. 3, 4, & 5
(WATER OPERATED)

PENBERTHY
INJECTOR COMPANY
ESTABLISHED IN 1886
DETROIT
CANADIAN PLANT, WINDSOR, ONTARIO



BUSINESS CHAIRS

For the Directors' Room

ARCHITECTURALLY correct business interiors demand furniture harmonious in conception to complete them. In the modern interiors, the influence of period designs is being felt to an even greater degree with each passing day.

The Queen Anne chair illustrated above is but one of many B. L. Marble period designs especially suitable for use in Directors' Rooms and in fine Executive Offices. It imparts an atmosphere of individuality and refinement to its surroundings. The use of this design is not restricted to one type of desk or table, it being equally appropriate for use with those of turned or square leg design.

Our new Catalog No. 34 will be mailed to Architects and Specification Writers upon request. It illustrates and describes a most comprehensive line of business chairs, including full-upholstered designs for Executives' use as well as our complete line for general office and public building requirements.

The B. L. Marble Chair Company
BEDFORD, OHIO
New York Office, 101 Park Avenue
Telephone Caledonia 7026

RECENT TRADE PUBLICATIONS

ISSUED BY MANUFACTURERS OF CONSTRUCTION MATERIALS AND EQUIPMENT

[These may be secured by architects on request direct from the firms that issue them, free of charge unless otherwise noted.]

INDUSTRIAL LIGHTING AND AIRATION

"Industrial Daylighting by the Fenestra Method." Principles of daylighting. Method of obtaining evenly distributed daylighting. Monitor windows versus skylights. How to figure the daylighting for building. Daylighting a multi-story building. Type of glass to be used. Means of controlling glare. Tables. Typical problems. 8½ x 11 in. 24 pp.

"Industrial Airation by the Fenestra Method." What is considered good ventilation. Temperature difference as a means of moving air. Operation of a typical monitor roof. Operation of a typical roof ventilator. Proper design of building for Airation. Typical Problems. Diagrams. Form blank for questions. 8½ x 11 in. 24 pp. The Detroit Steel Products Co., 2250 East Grand Boulevard, Detroit, Mich.

WASH FOUNTAINS

"Are Users Satisfied." Bradley wash fountains for group use. Fifty-four inch fountain providing for 10 persons. Circular and semi-circular arrangement to save floor space. Self-flushing. Materials impervious to grease and alkali. Sprayhead delivered in such a position as to prevent dripping of water on floor. Advantages. List of corporations using fountain. Illustrations. The Bradley Washfountain Co., Milwaukee, Wisc. 4 x 8¾ in. 16 pp. Ill.

TILE FLOORING

"Tile Flooring Type A." Finished, decorative utilitarian flooring manufactured in flat, compact, individual tiles. Characteristics. Cost. Advantages; durability, sanitary and waterproof qualities, fire-proof and stain-proof. Resiliency. Colorful reproductions in various patterns. Stair-Treads. Tile flooring cement. Underfloors. Diagrams giving details of J. M. Tile Flooring Type A applications. Specifications. 11 x 8½ in. 15 pp.

"Floridene Stone." Untreated stone possessing unusual structural and decorative qualities. Easy workability. Color. Cost. Sources of supply and decorative qualities. Geological explanation. Durability. Adaptability. 8½ x 11 in. Folder 4 pp. Johns-Manville Corp., 292 Madison Ave., New York, N. Y.

HEATING

"Recessed and Concealed Heaters." Heating equipment installed in the wall, housed in sheet cases. Decorative grilles form outlets for heated air. Heat delivered out—away from wall, into living zone. Illustration. Copper radiator. Two grilles affording continuous circulation of air. Damper control regulating amount of heated air. Construction. Specific installations. Diagrams. Capacity tables for steam or hot water. 11 x 8½ in. 7 pp. folder.

"Modine Unit Heater." Bulletin 329. Specific installations. Variable speed motor. Control of temperature. Quietness in operation. Table of capacities of Modine Unit Heaters equipped with variable speed motors. 4 page folder, 8½ x 11 in. Modine Mfg. Co., Racine, Wis.

(Continued on page 182)

The Invisible Superintendent at the Mortar Box *Assures the Mix* SPECIFIED

EVEN when the architect specifies the ideal mix for portland-cement-and-lime mortar, he has no assurance that his specifications will be accurately followed unless his superintendent is constantly at the mortar box... The proportion of lime may be increased for the sake of plasticity or the mix may be oversanded. In either case the strength of the mortar is impaired.

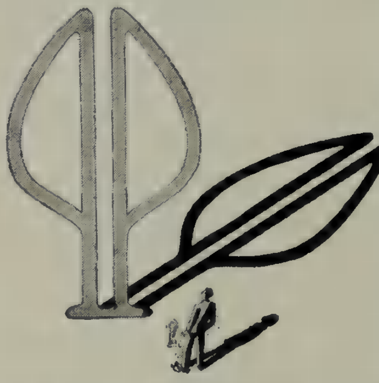
The use of BRIXMENT, however, is your assurance that all mortar will be uniform in strength and color and that specifications will be accurately followed. If oversanded, BRIXMENT mortar works short and, since there is no lime in the mix, the necessary plasticity can be secured only by using the proper amount of BRIXMENT. *Handbook on request.* Louisville Cement Company, *Incorporated,* Louisville, Kentucky.

District Sales Offices: 1610 Builders Bldg., *Chicago;* 301 Rose Bldg., *Cleveland;* 602 Murphy Bldg., *Detroit;* 101 Park Ave., New York

BRIXMENT

for Mortar and Stucco

In the end, the responsibility for good lumber is *yours!*



YOUR CLIENT knows little about lumber. The builder may not care what wood he gets, so long as it looks good and carries a rock-bottom price. But *you* know and *you care!* Lumber is one of the most important materials that go into the house. And you know, too, your responsibility for that lumber still holds long after the home is completed.

Specify Pondosa Pine for any softwood purposes, except framing. A well-seasoned, carefully graded and milled lumber, Pondosa stays flat, clings to nails and paint, and finishes with a beautiful, satiny surface. And to make sure you get Pondosa Pine when you ask for it, this good wood carries the pine tree trade-mark right on the end grain. Specify Pondosa Pine. There is an abundance of Pondosa Pine at reliable lumber yards throughout the nation. Address dept. 70, Western Pine Manufacturers Association, Portland, Oregon.

Pondosa Pine
The Pick o' the Pines

RECENT TRADE PUBLICATIONS—(Continued)

GYPSUM

"The Red Book." Gypsum—general technical data. Insulation data. Sheetrock Pyrofill roof construction. Master specifications. Table purlin sizes and weights for various truss and purlin spacings. Layouts showing details of sheetrock Pyrofill roof construction. Pyrobar precast roof tile. Master specifications. Typical installations. Layouts of short span and long span roof tile. Master specifications monolithic gypsum floors and roofs. Table cable spacing and slab depths for various loads and space. Layouts designing data for Pyrofill monolithic construction. Layouts. Pyrobar interlocking structural floor tile and ceiling tile. Partition and furring tile. Column beam and girder fireproofing. Specifications. Tables and diagram of weights and sizes of Pyrobar beam and girder fireproofing per lineal foot of beam. Construction details Pyrobar partition tile. U. S. G. system of sound insulation. Diagrams. Fireproof sound absorbents for Acoustical treatment. Sabinite plaster. Acoustical tile. Analysis Service. 8½ x 11 in. 31 pp. Ill. United States Gypsum Co., 300 West Adams St., Chicago, Ill.

CASEMENTS

"Standard Casements with Casement Screens." Casement Rol-up Screens. Integral part of the casement window. Construction features. Specifications. Layouts of Standard Model No. 5 with screens. Pictures of progressive installation. Casement side hinged screens. Diagrams of various stock type screens. Specifications. Layouts of flat type side hinged screens. 8½ x 11 in. 15 pp. Ill. Truscon Steel Co., Youngstown, Ohio.

(Continued on page 184)

To beautify and protect your modern structures

ARCHITECTS can depend on du Pont paints, varnishes and enamels to enhance the beauty of their design and preserve that beauty for a longer time. Why? Because every du Pont finish is Pre-tested . . . the result of a formula scientifically designed to meet the most rigid requirements of today . . . and fit the decorative needs of tomorrow.

Inquiries regarding du Pont paints, varnishes, enamels and other pigment products are invited. The Architectural Division is equipped to deal intelligently with special problems of application, decorative effects, and technique.

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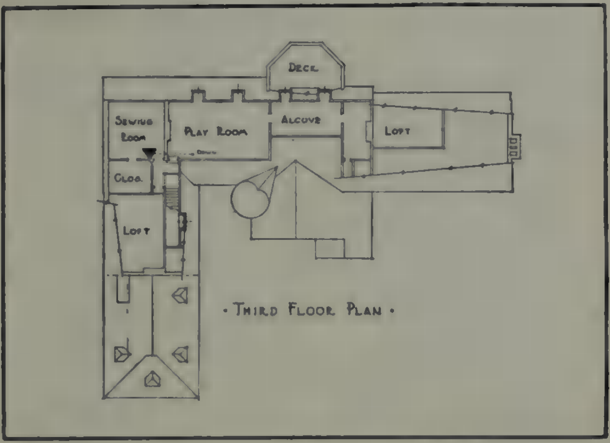
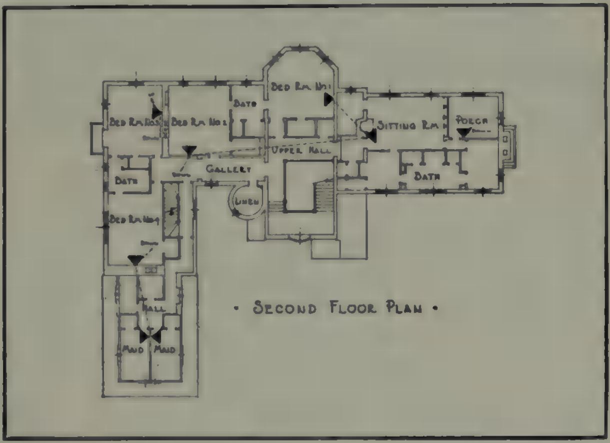
For Distinctive homes . . . Telephone Convenience is *especially* Important

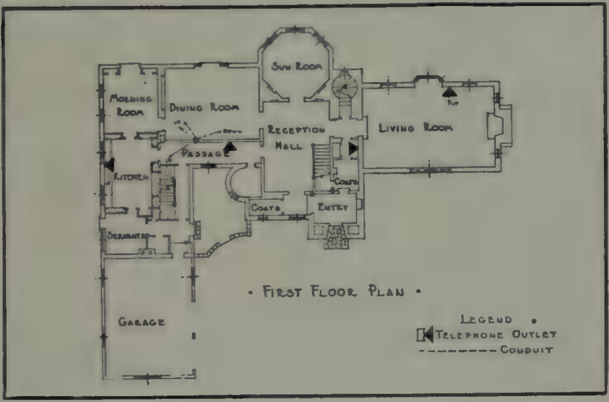
Complete telephone convenience is provided in the residence of Mr. Wallace D. Bowles of Seattle, Washington, by fourteen telephone outlets, including one in the basement billiard room. The telephone wiring is carried in conduit built into the walls and floors.
George Wellington Stoddard, Architect, *Seattle.*



· Third Floor Plan ·

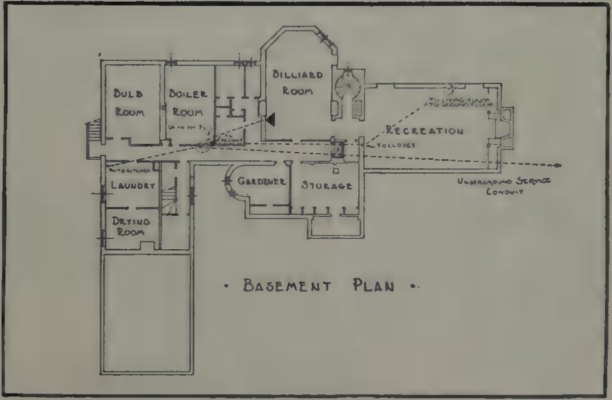


· Second Floor Plan ·



· First Floor Plan ·

Legend ·
Telephone Outlet
Conduit



· Basement Plan ·

In houses of marked individuality certain things stand out . . . beauty and smartness of design . . . durability of materials . . . provision for the convenience and comfort of the occupants . . . anticipation of future needs. These latter are things to which architects today are giving particular attention. That is one reason they are increasingly interested in *telephone convenience.*

Home owners everywhere are welcoming this modern note: *telephones throughout the house,* wherever they will save steps and time and effort in placing and answering calls. Many architects are providing for it in new and remodeled houses by specifying conduit for the telephone wiring during construction. Telephone outlets are thus made available in nearly every room; the owner can use as many of them as he desires, and he can have the improved appearance and protection against service interruption that come from concealed wiring.

The Bell System is constantly studying matters pertaining to its service, and has much data of interest to architects. It is desirable that you consult freely with representatives of the local Bell Company in planning the telephone arrangements for specific projects. There is no charge. Just call the Business Office.

American Telephone & Telegraph Co
Bell System
and Associated Companies

No. 4038

THE CUTLER MAIL CHUTE

Designed in its perfected form as the result of long experience to meet the requirements of public use under Post Office Regulation. Simple and substantial in form and construction. Harmonizes with the new motif in modernistic architectural composition.

A most interesting selection of stock Mail Boxes in conformity with the Art Moderne and executed in benedict nickel or other current media are now offered as constituent features of any equipment.

A pleasure to furnish information promptly upon request.

THE CUTLER MAIL CHUTE CO.
GENERAL OFFICES AND FACTORY
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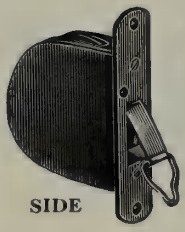
CALDWELL SASH BALANCES

Backed by Forty Years' Experience

Each Caldwell Sash Balance has a quality built into it that assures satisfaction, and maximum length of service.

Box Frames can be eliminated, thus contributing greatly to making a building of warm construction. They also permit the use of narrow mullions and double hung windows in rows to give the casement effect. Mortises can be cut at the mill to one size. When the saving of labor and material is considered, they cost no more than ordinary weights and cords.



Send for booklet "Present Day Architect"
Giving Mortise Dimensions

CALDWELL MANUFACTURING COMPANY
ROCHESTER, NEW YORK, U. S. A.

RECENT TRADE PUBLICATIONS—(Continued)

CONCRETE MIXING

"Solvay Calcium Chloride in Concrete." Calcium Chloride introduced into mass by mixing with water. Large reduction in water content and necessary moisture for proper hydration. Advantages; solution of cold weather problem, quicker setting and curing, economy. Approved by investigating committee of New York architects and engineers. Solvay Sales Corp., 40 Rector Street, New York. 8½ x 11 in. 6 pp. Ill.

WINDOWS

"The Better Windows." Construction of solid special rolled sections of steel. Shades and screens. Hardware. Hinges. Setting and glazing. Diagrams for vertical and horizontal sections. Tables of dimensions for standard types and sizes. Layouts showing details of installation for various types of windows. 11 x 8½ in. 28 pp. David Lupton's Sons, Philadelphia, Pa.

STEEL JOISTS

"Steel Joist Data Book." Ingalls Truss. Details. Blueprints. Specifications. Load tables. Explanation of Load tables. 8½ x 11 in. 28 pp.

"Steel Joists, History, Characteristics and Design." History of the development of steel joists. Characteristics. Fire resistance. Sound resistance. Types and Design. Wind Stresses. Concrete slab. 10½ x 7½ in. 15 pp. Ingalls Steel Products Co., Birmingham, Ala.

Kawneer
BRONZE
STORE FRONTS
in
BRONZE, ALUMINUM ALLOY AND COPPER

For excellence of workmanship, true reproduction of design and sound construction we advocate the fabrication of store fronts at our factory. A corps of skilled workmen trained by an institution with twenty-five years' experience in store front building is your assurance of satisfaction. "B" Construction designed along modern lines is now available in the metals mentioned above. Send for Circular on "B" Construction and Full Size Details.

SEE OUR CATALOG IN THE 1930 SWEET'S

THE
Kawneer
COMPANY
NILES, MICHIGAN BERKELEY, CALIFORNIA

SEE OUR EXHIBIT AT ARCHT'S SAMPLE CORP., NEW YORK CITY

BRANCH OFFICES IN

Atlanta, Ga.
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Charlotte, N. C.
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Detroit, Mich.

Kansas City, Mo.
Louisville, Ky.
Memphis, Tenn.
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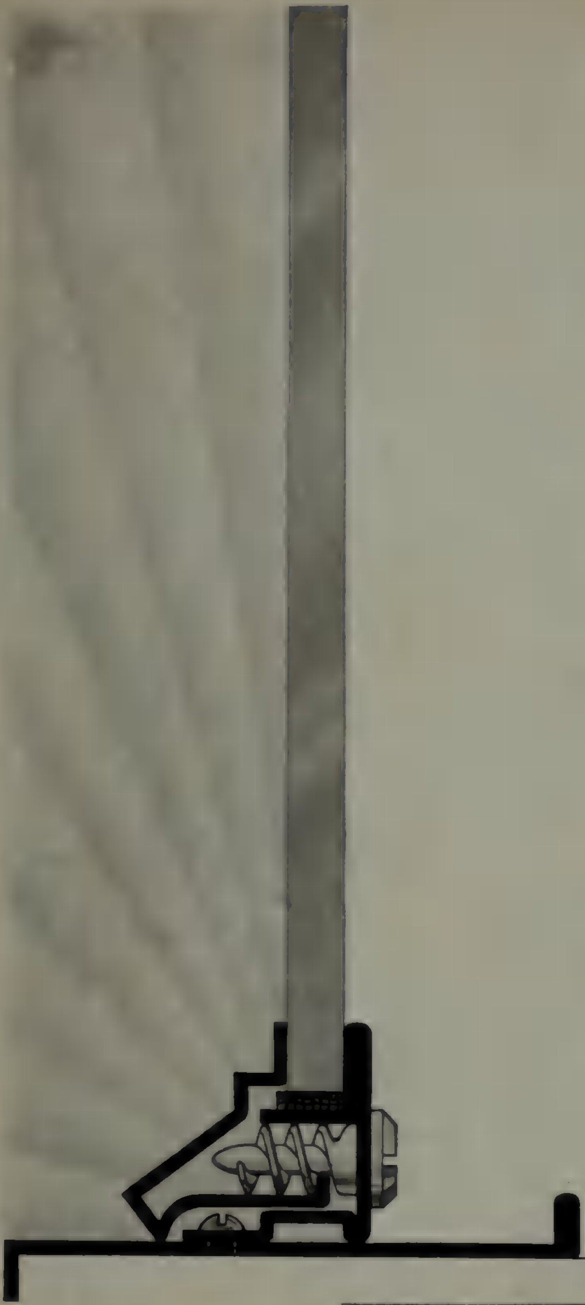
New Orleans, La.
New York, N. Y.
Omaha, Nebr.
Philadelphia, Pa.
Pittsburgh, Pa.



Sash B-1 of "B" construction (Full Size). Sufficiently sturdy and graceful for the largest and finest store fronts.

SEALAIR
IS DRAFT PROOF
Open or Closed

When open the sashes are tilted to deflect the air current, thus providing the interior with moderate ventilation. Closed, the points of the sash are pressed against pliable asbestos strips reducing air leakage to a minimum. THE ENTIRE WINDOW MAY BE WASHED FROM THE INSIDE. Furnished in heavy gauge bronze or steel. Send for complete description and F. S. details.

THE
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COMPANY
Manufacturers of
BRONZE STORE FRONTS,
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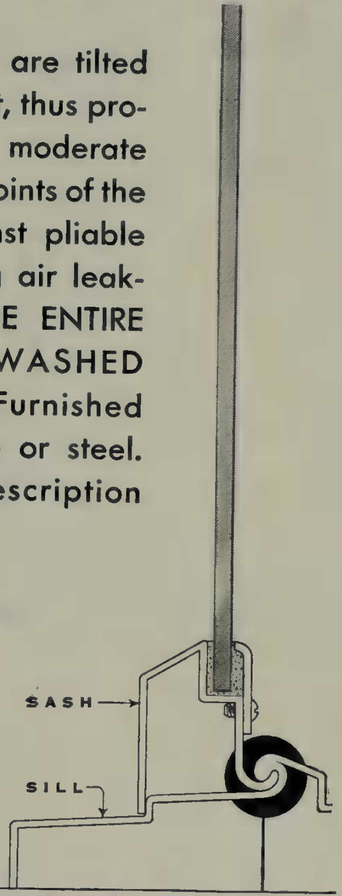
Niles, Michigan
Subsidiary: Berkeley, Calif.



ALSO WEIGHT-HUNG WINDOWS (Light and Heavy) AND CASEMENTS

CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 202

☛ After reviewing advertisements in this issue—use Sweet's Architectural Catalogues for 1930 for catalogue and specification information on the products of the most of the manufacturers.

Acid Proof Chemical Stoneware
Knight, Maurice A.

Acoustical Installation—Guastavino, R., Co.

Acoustics
Boston Acoustical Eng. Division of Housing Company
Johns-Manville Corp.

Air Compressors
Westinghouse Traction Brake Co.

Air Conditioner
Airway Electric Appliance Corp.
American Blower Co.
Lewis Corporation

Aluminum
Aluminum Co. of America

Arc Welding—Lincoln Electric Co.

Architectural Faience
Associated Tile Mfrs.

Architectural Supplies
Higgins, Chas. M., & Co.

Artstone—Rackle, George, & Sons Co.

Asbestos—Johns-Manville Corporation

Baking Machinery
Read Machinery Co.

Balances, Sash—See Sash Balances

Basement, Windows—Steel
Detroit Steel Products Co.
Truscon Steel Company

Beads—Corner Metal
Milwaukee Corrugating Co.
Truscon Steel Company
Wheeling Corrugating Co.

Beams, Angles, Channels, Etc.
Carnegie Steel Company

Belts
Dayton Rubber Mfg. Co.

Blackboards—Weber Costello Co.

Boiler and Pipe Covering
Johns-Manville Corporation
Ric-wiL Company

Boilers—American Gas Products Co.
American Radiator Co.
Bryan Steam Corp.
Smith, H. B., Company, The, Inc.

Bolts—Door—Corbin, P. & F.

Brass and Bronze
See "Ornamental Metal"

Brass and Copper
See "Copper and Brass"

Brick
Finzer Bros. Clay Co.

Bridges—Steel—American Bridge Co.

Builders—Stone & Webster, Inc.

Buildings—Steel
Carnegie Steel Company
Nat'l Assoc. of Flat Rolled Steel Mfrs.

Butts—Corbin, P. & F.
Stanley Works

Cabinet Work—Hyde-Murphy Co.

Cabinets—Kitchen
Circle A Products Corp.

Cabinets—Toilet Paper
Victoria Paper Mills Co.

Cabinets—Radiators
Tuttle & Bailey Mfg. Co.

Casement Operators—Rixson, Oscar C., Company

Casements—Crittall Casement Window Co.
Detroit Steel Products Co.
International Casement Co.
Truscon Steel Company

Cast Stone
Cast Stone Institute

Cellar Drainer
Penberthy Injector Co.

Cement
Louisville Cement Company
Medusa Portland Cement Co.
Portland Cement Association
U. S. Gypsum Co.
Universal Cement

Cement White
Medusa Portland Cement Co.

Chain Sash—American Chain Co., Inc.
Detroit Steel Products Co.
Smith & Egge Mfg. Co.

Chairs
Marble, B. L., Chair Co.

Channels—Carnegie Steel Co.
Concrete Engineering Co.

Church Memorials
American Seating Company

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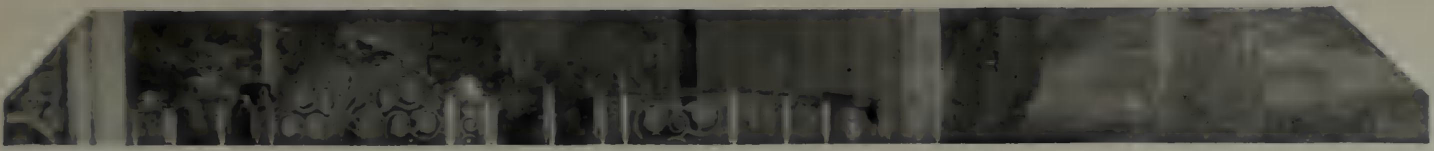

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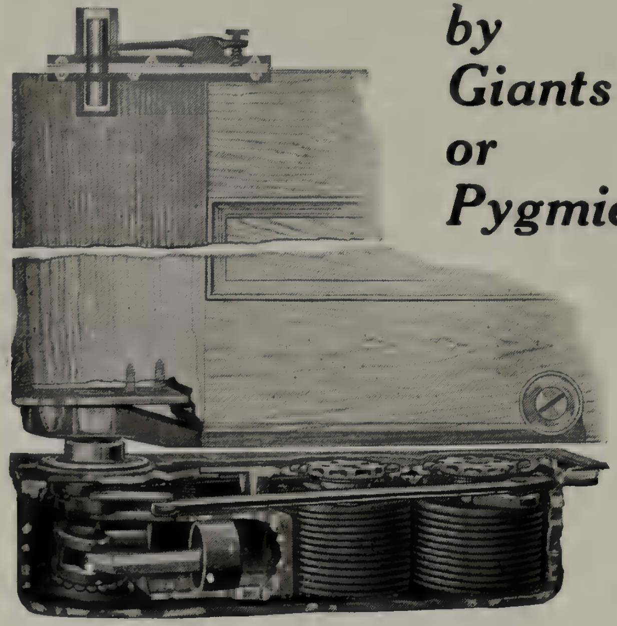

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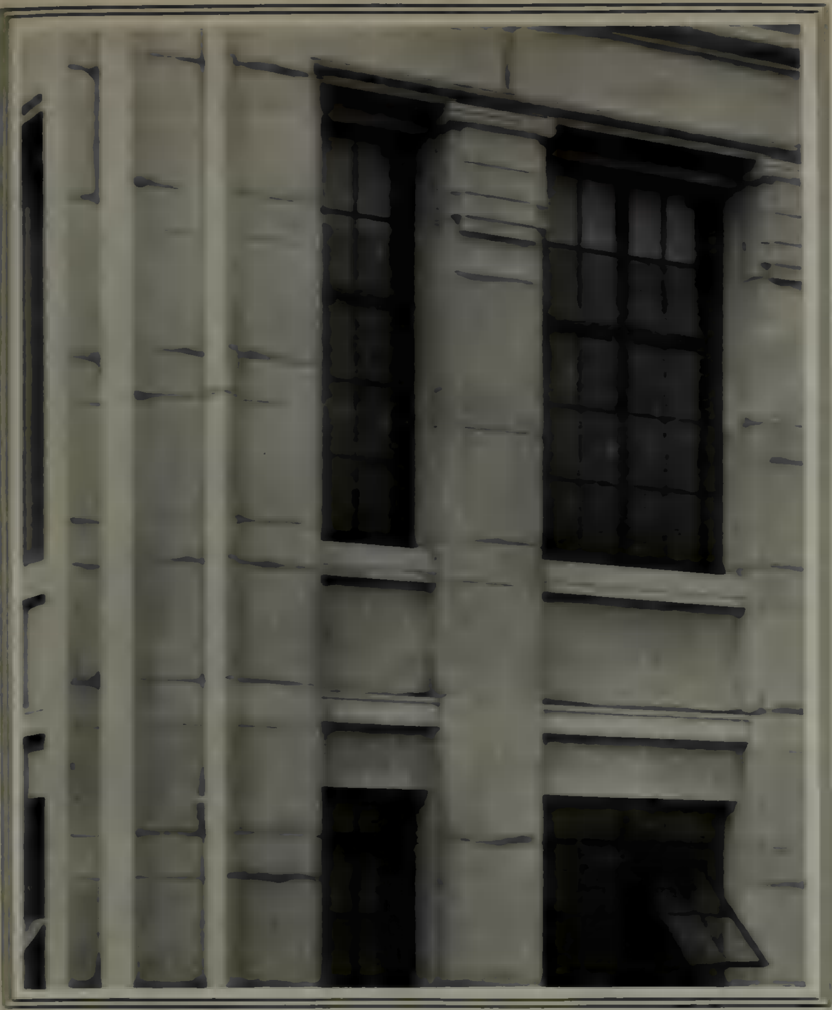

The illustration at the left is a general example of weeping joints. Notice the ugly stains.

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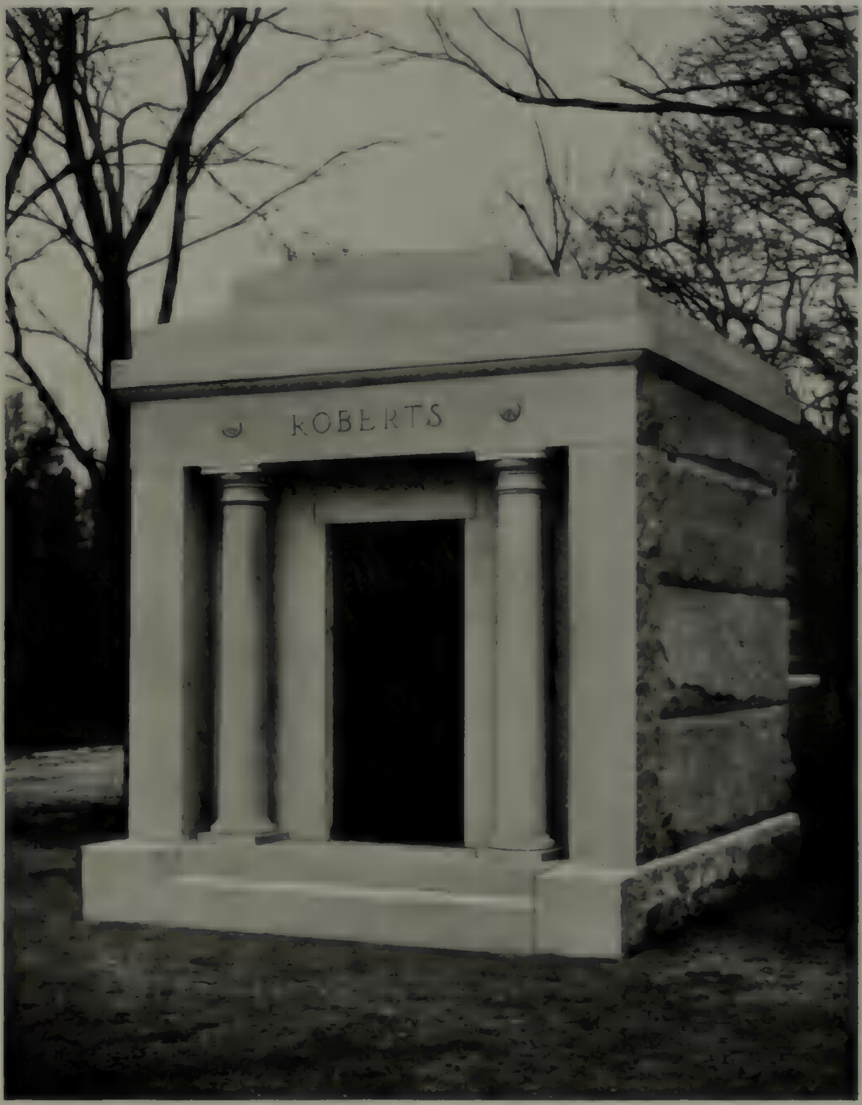

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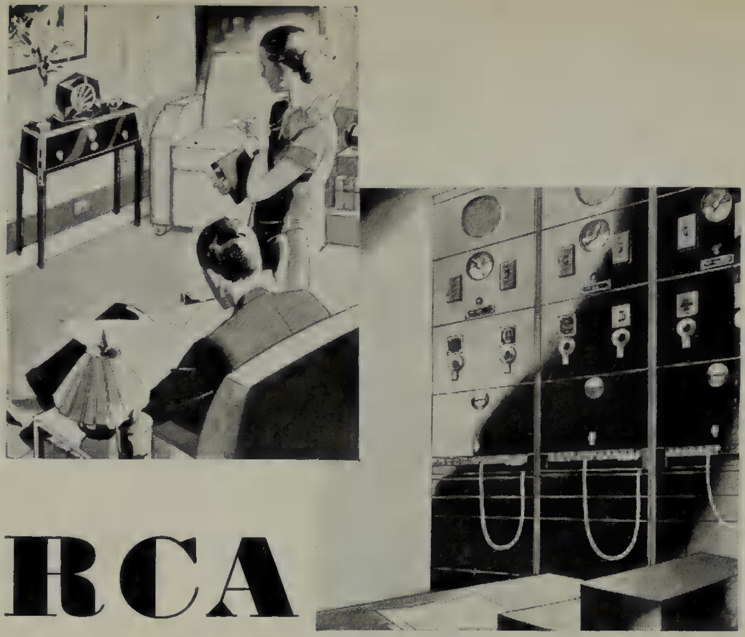

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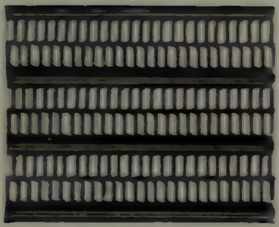

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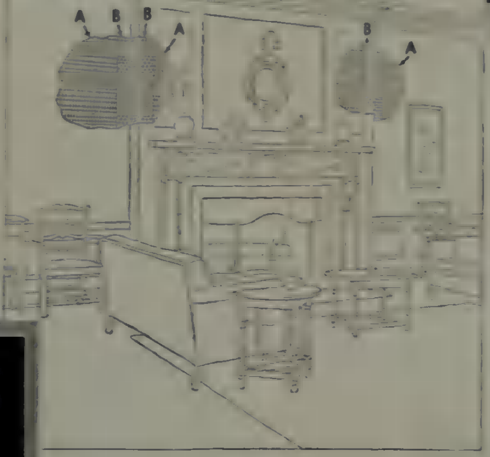

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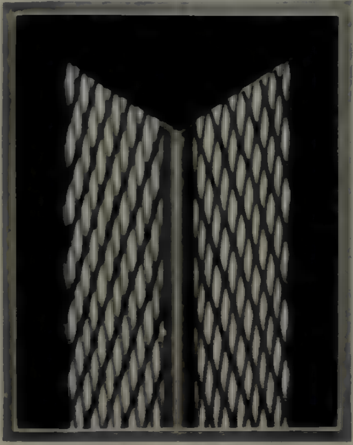

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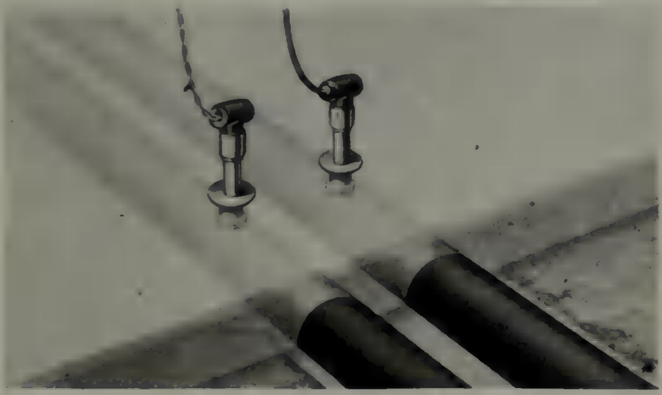
INDEX TO ADVERTISEMENTS

Classified Directory of Advertisers, Pages 186-200 Inclusive

Catalogues of concerns marked (S) are in Sweet's Architectural Catalogues for 1930.

(S)	Adam, Frank, Electric Co	152
(S)	Adamston Flat Glass Co	33
(S)	Aerofin Corporation	153
	Air-Way Electric Appliance Corp	122
(S)	Alan Wood Steel Co	154
(S)	Allen & Drew, Inc	88
(S)	Alberene Stone Company	137
(S)	Aluminum Co. of America	27-28-29-110
(S)	American Blower Co	65
	American Bridge Co	159
(S)	American District Telegraph Co	129
(S)	American Gas Products Corp	60
	American Institute of Steel Const	6
(S)	American Radiator Co	60-175
	American Seating Co	16
	American Sheet & Tin Plate Co	30
(S)	American Steel & Wire Co	35
(S)	American Stove Co	163
(S)	American Telephone & Telegraph Co	183
	American Walnut Mfrs. Assoc	5
(S)	American Window Glass Co	10
	Andorra Nurseries, Inc	166
	Architects' Announcements	87
(S)	Arkansas Oak Flooring Co	61
(S)	Armstrong Cork Co. Custom Floors Dept.	24
(S)	Armstrong Cork & Insulation Co	197
	Associated Business Papers	138
(S)	Automatic Electric, Inc.	22
	Baltimore Copper Mills Division Revere Copper & Brass, Inc	158
(S)	Batchelder-Wilson Co	117
(S)	Bates Bros. Seam-Face Granite Co., Inc	70
(S)	Bayley, William, Company	141
	Belson Mfg. Co	168
	Birch Mfrs	198
(S)	Bonded Floors	90
(S)	Boston Acoustical Eng. Division of Housing Co.	63
(S)	Briar Hill Stone Co	144
(S)	Bruce, E. L., Co	61
	Bryan Steam Corp	140
(S)	Bryant Heater & Mfg. Co	21
(S)	Buffalo Forge Co	98
(S)	Cabot, Samuel, Inc	160
(S)	Caldwell Mfg. Co	184
(S)	Carey, Philip, Co	13
	Carnegie Steel Co	64
(S)	Carter Bloxonend Flooring Co	41
	Case, W. A. Mfg. Co	148
(S)	Cast Stone Institute	54
(S)	Central Alloy Steel Corp	82
(S)	Cellized Oak Flooring Co., Inc	61
(S)	Century Brass Mfg. Co	146
(S)	Cheney Company	52
(S)	Church, C. F., Mfg	99
(S)	Circle A Products Corp	162
(S)	Clay Products Assn	156
(S)	Compound & Pyrono Door Co	39
(S)	Congoleum-Nairn Co	90
(S)	Corbin, P. & F.	91
(S)	Cornell Iron Works, Inc	168
	Construction Statistics	178
(S)	Crampton-Farley Brass Co	164
(S)	Crane Co	177
(S)	Crittall Casement Window Co	104
	Crouse-Hinds Co	74
(S)	Cutler Mail Chute Co	184
(S)	Dahlstrom Metallic Door Co	32
	Dayton Rubber Mfg. Co	108
(S)	Detroit Show Case Co	145
(S)	Detroit Steel Products Co	81
	Dodge, F. W., Corp	142
(S)	Dubois Fence & Garden Co., Inc	188
(S)	Dunham, C. A., Co	151
(S)	du Pont, E. I. de Nemours & Co., Inc	85-182
(S)	Evans, W. L.	154
(S)	Federal Cement Tile Co	23
(S)	Federal Seaboard Terra Cotta Corp.	157
	Fibre Conduit Co	203
(S)	Finzer Bros. Clay Co	92
(S)	Fiske, J. W., Iron Wks	46
(S)	Flax-li-num Insulating Co	121
(S)	General Bronze Corp	84
	General Window Equipment Corp	166
(S)	Georgia Marble Co., The	66
(S)	Goodyear Tire & Rubber Co	191
(S)	Graybar Electric Co	173
(S)	Hamlin Irving	172
(S)	Hart & Hegeman Division	42
	The Arrow-Hart & Hegeman Electric Co.	
(S)	Hartman-Sanders Co	103
(S)	Heatilator Co	126
(S)	Higgin Manufacturing Co	164
	Higgins, Chas. M., & Co	170
(S)	Holtzer-Cabot Elec. Co., The	150
(S)	Housing Co	63
(S)	Hunt, Robert W., Company	158
(S)	Hyde-Murphy Co	166
	Imperial Electric Company	96
(S)	Indiana Limestone Co	3
(S)	International Casement Co	75
(S)	International Nickel Co	128
	Jacobson & Company	44
(S)	Jacobson Mantel & Ornament	190
(S)	Johns-Manville Corporation	8-9
(S)	Johnson, S. T., Co	53
(S)	Kalman Steel Co	139
(S)	Kawneer Company	185-186-187
(S)	Kelley Island Lime & Transport Co.	127
(S)	Kinnear Mfg. Co	94
(S)	Kliegl Bros	170
(S)	Knight, Maurice A	118
	Kohler Co	97
(S)	Landis Eng. & Mfg. Co	80
(S)	Leonard Rooke Co	168
	Lewis Corporation	124
(S)	Lincoln Electric Co	189
(S)	Long-Bell Lumber Co	61
(S)	Louisville Cement Co	181
(S)	Ludowici-Celadon Co	109
(S)	Lupton's, David, Sons Co	106
(S)	MacAndrews & Forbes Co	105
(S)	MacArthur Concrete Pile Corp	149
(S)	McCray Refrigerator Sales Corp.	38
(S)	Mahon, R. C., Company	34
	Marble Chair Co., B. L.	180
(S)	Medusa Portland Cement Co	193
(S)	Mesker Bros. Iron Co	58
(S)	Milwaukee Corrugating Co	199
(S)	Modine Mfg. Co	172
	Motor Wheel Corp	77
(S)	Nash Engineering Co	55-56
(S)	Nashville Hdw. Flooring Co	61
	National Assoc. of Flat Rolled Steel Mfrs.	72
(S)	National Bldg. Granite Quarries Assoc.	86
(S)	National Fire Proofing Corp	57
(S)	National Lead Company	71
(S)	National Mortar & Supply Co	112
(S)	National Terra Cotta Society	93
	National Tube Co	155
(S)	Nelson, Herman, Corp	17-18-19-20
(S)	Northwestern Terra Cotta Co	14
(S)	Norton Company	48
(S)	Norton Door Closer Co	113
	Notes in Brief	174-176
(S)	Oak Flooring Mfrs. Assoc. of U. S	200
(S)	O'Brien Bros. Slate Co., Inc	125
(S)	Ohio Hydrate & Supply Co	69
(S)	Owens' Sons, Owen W., Inc	115
(S)	Patent Scaffolding Co	67
	Pearlman, Victor S. & Company	144
(S)	Peelle Company, The	107
(S)	Peerless Unit Ventilation Co., Inc	100
(S)	Penberthy Injector Co	179
(S)	Pfaltz & Bauer, Inc	170
(S)	Pfaudler Co	162
(S)	Pittsburgh Plate Glass Co	51
	Port Orford Cedar Prod. Co	78
(S)	Pratt & Lambert, Inc	31
(S)	R. C. A. Victor Co., Inc	196
(S)	Rackle, Geo., & Sons Co., The	194
(S)	Raymond Concrete Pile Co	7
(S)	Read Machinery Co	152
(S)	Reading Iron Co	169
	Recent Trade Publications	180-182-184
(S)	Republic Iron & Steel Co	79
	Revere Copper & Brass, Inc	3rd Cover
(S)	Ric-wiL Co	148
(S)	Rising & Nelson Slate Co	119
(S)	Rivet Grip Steel Co	133
(S)	Rixson, Oscar C., Company	192
(S)	Roddis Lumber & Veneer Co	26
(S)	Rolscreen Co	25
(S)	Rome Brass Radiator Corp	130
	Rundle-Spence Mfg. Co	160
(S)	Russell & Erwin Mfg. Co	95
(S)	Samson Cordage Works	166
(S)	Sanymetal Products Co	12
	Sargent & Co	68
(S)	Sheldon, F. C., Slate Co	15
(S)	Silver Lake Co	164
(S)	Smith, H. B., Co	83
	Smith & Wesson	171
(S)	Smyser-Royer Co	120
(S)	Sonneborn, L., Sons, Inc	201
(S)	Soss Mfg. Co	172
	Southern Pine Assoc	101
(S)	Spencer Turbine Co	47
(S)	Stedman Products Co	45
	Stone & Webster Eng. Corp	40
(S)	Structural Gypsum Corp	165
(S)	Sturtevant, B. F., Co	102
	Sweet's Arch. Catalogues	134
(S)	Taylor, Halsey W., Co	73
	Taylor, N. & G., Company	172
(S)	Thompson Mfg. Co	146
(S)	Thorp Fire Proof Door Co	132
(S)	Transit Mixers, Inc	49
(S)	Trumbull Electric Mfg. Co	114
(S)	Truscon Laboratories	2
(S)	Truscon Steel Co	204
(S)	Tyler Co	4th Cover
(S)	Union Metal Mfg. Co	131
(S)	United Metal Products Co	150
(S)	U. S. Gutta Percha Paint Co	89
(S)	U. S. Mineral Wool Co	170
	Universal Portland Cement Co	2nd Cover
(S)	Vermont Marble Co	76
	Victoria Paper Mills Co	168
(S)	Vitrolite Co	4
(S)	Vonnegut Hardware Co	111
(S)	Vortex Mfg. Co	147
(S)	Weis, Henry, Mfg. Co	136
(S)	Westco-Chippewa Pump Co	43
(S)	Western Pine Mfrs. Assoc	182
(S)	Westinghouse Electric Elevator Co	50
(S)	Westinghouse Electric & Mfg. Co	62
(S)	Wheeling Corrugating Co	161
(S)	Wheeling Metal & Mfg. Co	11
(S)	Wheeler-Osgood Co	123
(S)	Wickwire Spencer Steel Co	156
(S)	Williams Oil-o-matic Heating Corp	135
(S)	Williams Pivot Sash Co	167
(S)	Wilson, J. G., Corp	116
(S)	Woodbury Granite Co., Inc	195
(S)	Wright Rubber Products Co	37
(S)	Yale & Towne Mfg. Co	36
(S)	Youngstown Sheet & Tube Co.	59
(S)	Zenitherm Company, Inc	143



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VOLUME 67 MARCH, 1930 NUMBER 3

Articles PAGE

The Place of the Apartment in the Modern Community—*By Henry Wright, Architect* 207–238
Cooperative Housing in Denmark *By L. Marnus* 261–263
Improved Aerated Clay Building Unit *By R. L. Davison* 289–290

Editorial

Possibilities for Housing Research *By Robert L. Davison* 264–266

Technical News and Research

Apartment Design to Meet Family Needs *By Robert L. Davison* 267–285

The Architect's Library

Photo-Eye, Franz Roh and Jan Tschichold *Reviewed by A. Lawrence Kocher* 298
Projects of Design, Szukalski
Theatres, Joseph Urban
Notes and Comments *Ad Section* 182–184

Illustrations of Apartment Buildings

Battery Tower, New York City *Thompson & Churchill, Architects*
Rendering by Chesley Bonestell *Colored Frontispiece*
View from River 208
Alden Park Manor, Philadelphia *Edwyn Rorke, Architect* 211, 212
Vincent Astor Apartments, New York City *Charles A. Platt, Architect* 220, 221
Westbury Apartment House, Philadelphia *Frank E. Hahn, Architect* 239
Number 1 West End Avenue, New York City *Pleasants Pennington and Albert W. Lewis, Architects* 240
1608 Walnut Street, Philadelphia *Tilden, Register and Pepper, Architects* 241
Delmar and De Baliviere Building, St. Louis *Bowling and Shank, Architects* 242, 244
Drake Towers, Chicago *Benjamin H. Marshall, Architect* 243, 244
Hawthorne Apartments, St. Louis *Pleitsch and Price, Architects* 245
King Cole Apartment, Kansas City *Nelle E. Peters, Architect* 245
Apartment, New York City *Giulio Levy, Architect* 245
Apartment Buildings, Kansas City *Nelle E. Peters, Architect* 246
Valenciana Apartment, Rancho Santa Fe, California *Lilian J. Rice, Designer* 246, 247
Apartment House on Crown Street, Brooklyn—*Berlinger and Kaufman, Architects* 248
Plan, Apartments in Kansas City *Pleitsch and Price, Architects* 248
Project at Grand Street, New York City *Springsteen and Goldhammer, Architects* 249
Beaux-Arts Apartments, New York City *Kenneth Murchison and Raymond Hood, Godley and Fouilhoux, Architects* 250–253
Apartment at 1040 Park Avenue, New York City *Delano and Aldrich, Architects* 254
Apartment at 960 Fifth Avenue, New York City *Cross and Cross, Architects* 255
Apartment for Mrs. O. R. Sommerich, New York City *Wolfgang and Pola Hoffman, Architects* 256, 257
Library Door, Charles J. Liebman's Apartment, New York City *Buchman and Kahn, Architects* 258
Apartment Interior, New York City *Whitman and Goodman, Architects* 259
Apartment for Mr. Herzberg, New York City *Howe and Lescaze, Architects* 259, 260
Edgewater Beach Apartments, Chicago *Benjamin H. Marshall, Architect* 278
Ronda Apartments, Hollywood, Calif. *Arthur Zwebell, Architect* 280
Michigan Boulevard Gardens, Chicago *E. H. Klaber and E. A. Crunsfield, Jr., Architects* 227, 283
Sunlight Towers—Drawings *A. Lawrence Kocher and Gerhard Ziegler, Architects* 286–288

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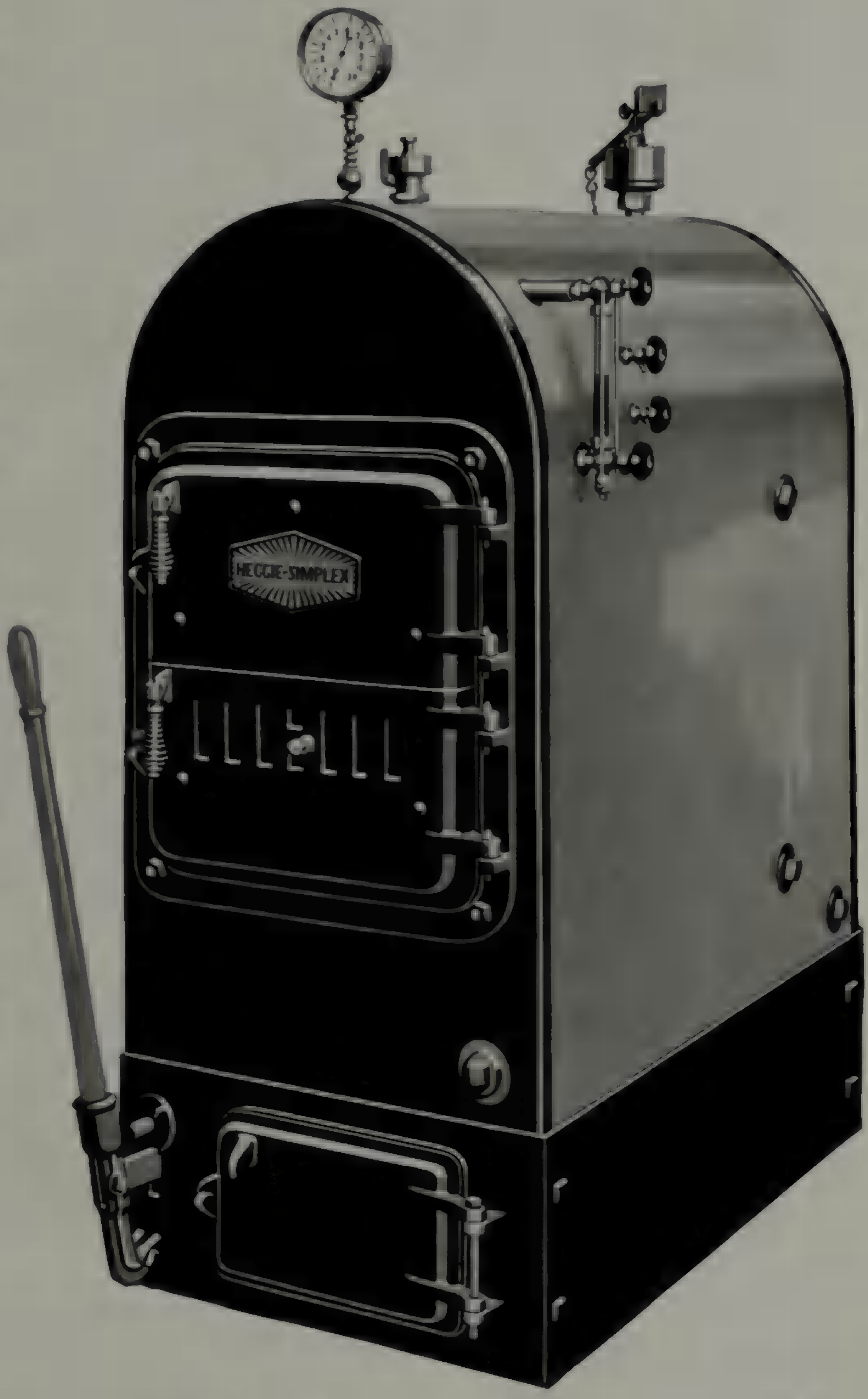

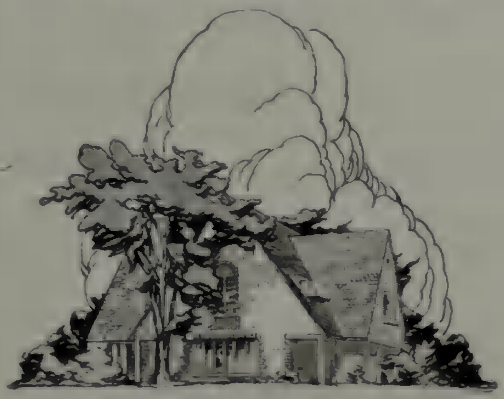

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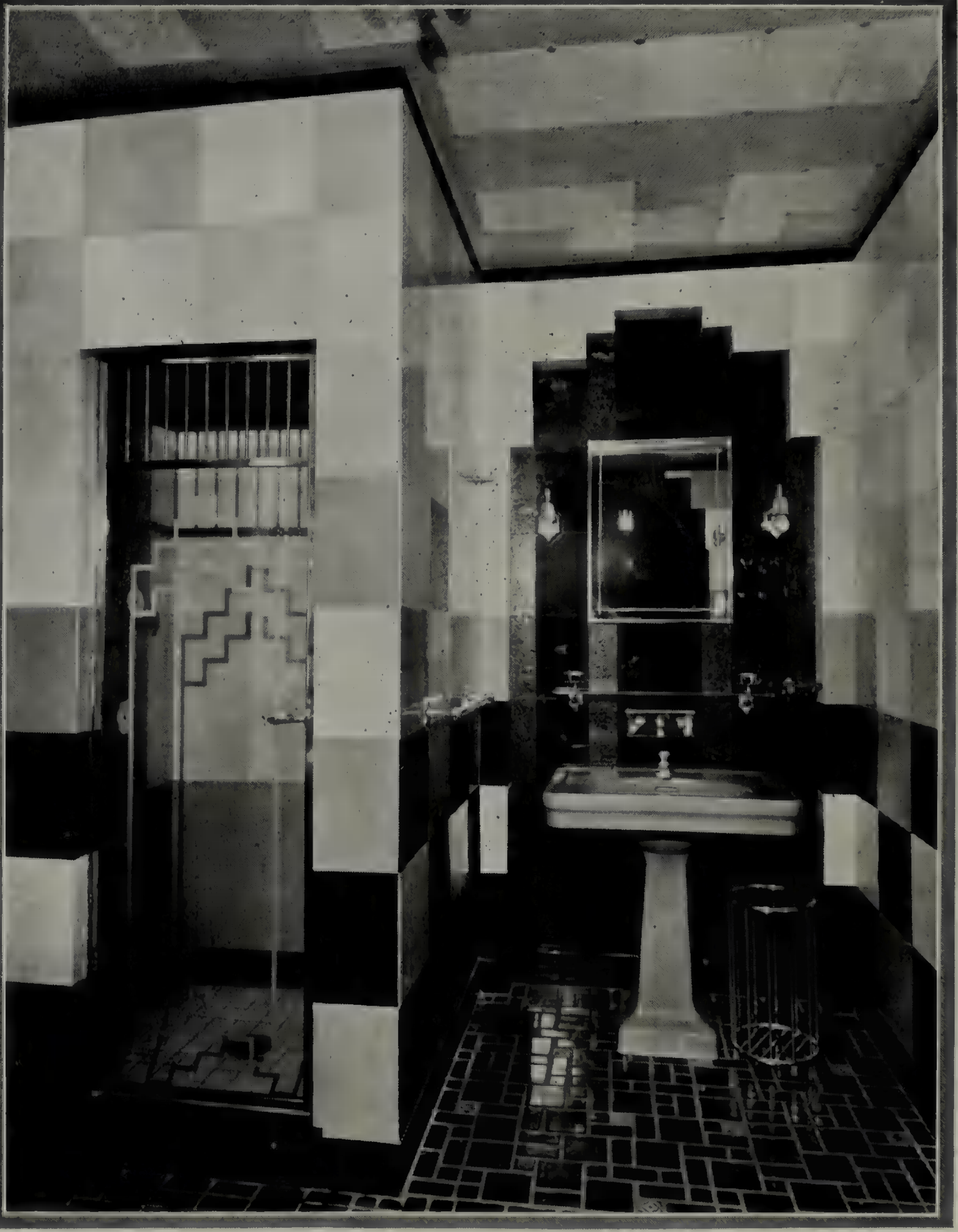

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Vitrolite is gaining popularity daily with architects all over the United States because of its adaptability for use in residential bathrooms and kitchens, in corridors, lobbies, and for toilet partitions in hotels, apartment buildings, office buildings and hospitals, store fronts, and wherever cleanliness and permanency are desired. Its flexibility of design, due to its many colors, textures, and slab sizes makes Vitrolite the ideal material for either conservative or modernistic effects.

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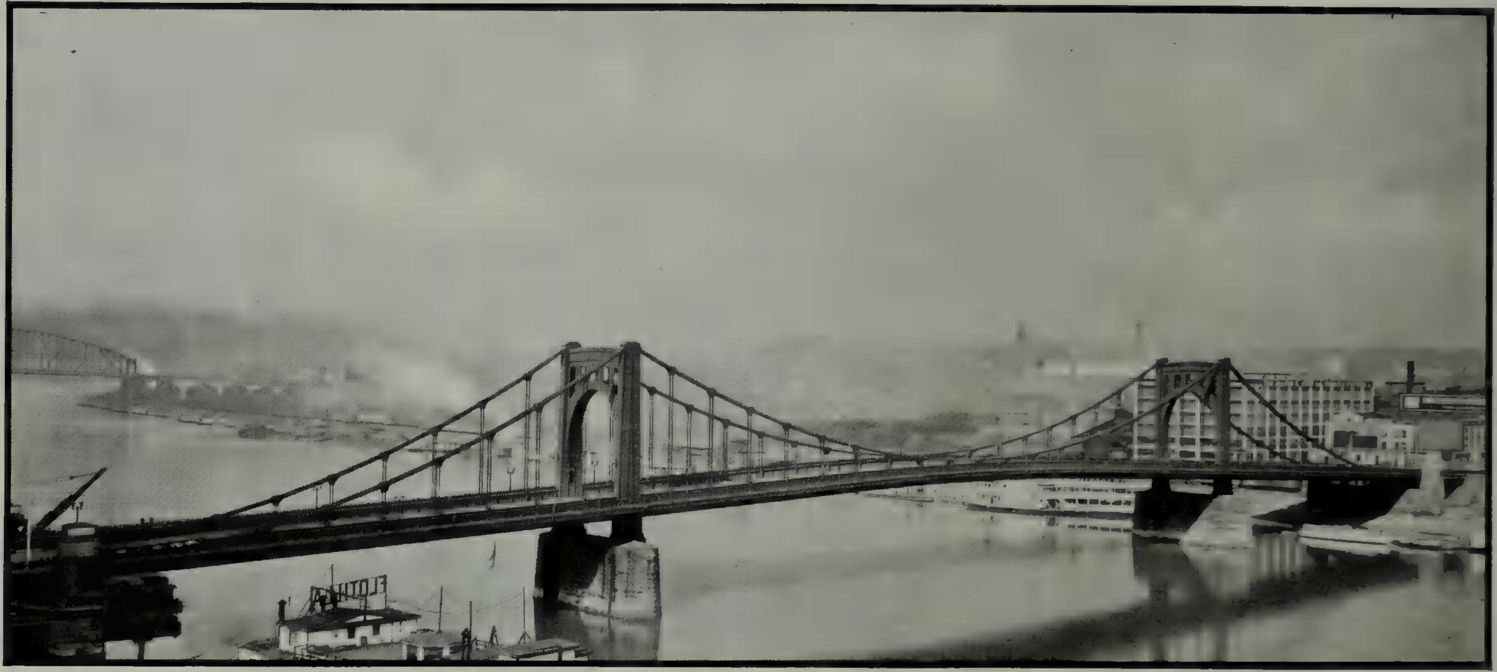

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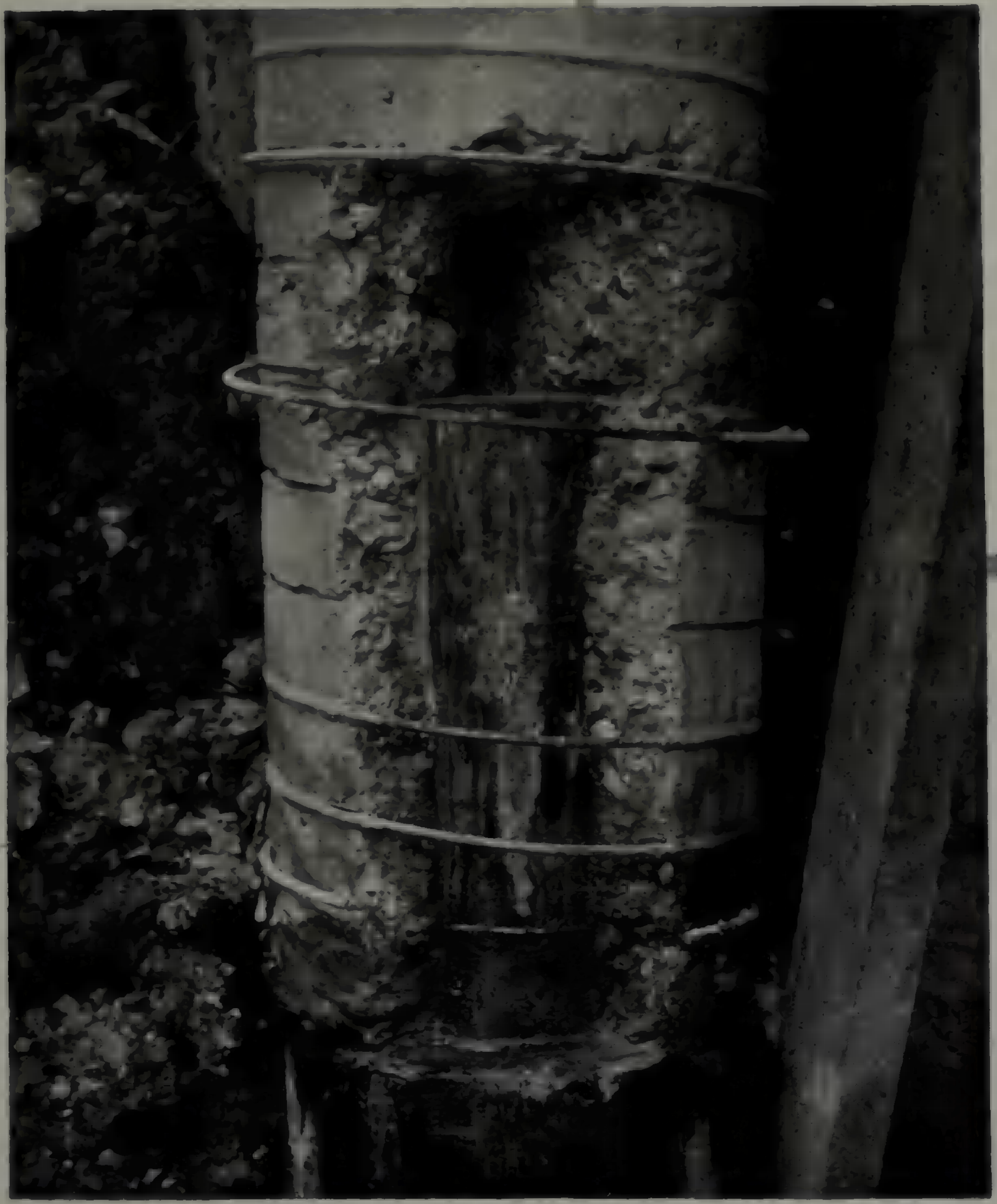

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Andersen
MASTER FRAMES
with the
Locked Sill-Joint

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On the page opposite, the features of the new Andersen Master Frame for frame construction are illustrated and described in detail.

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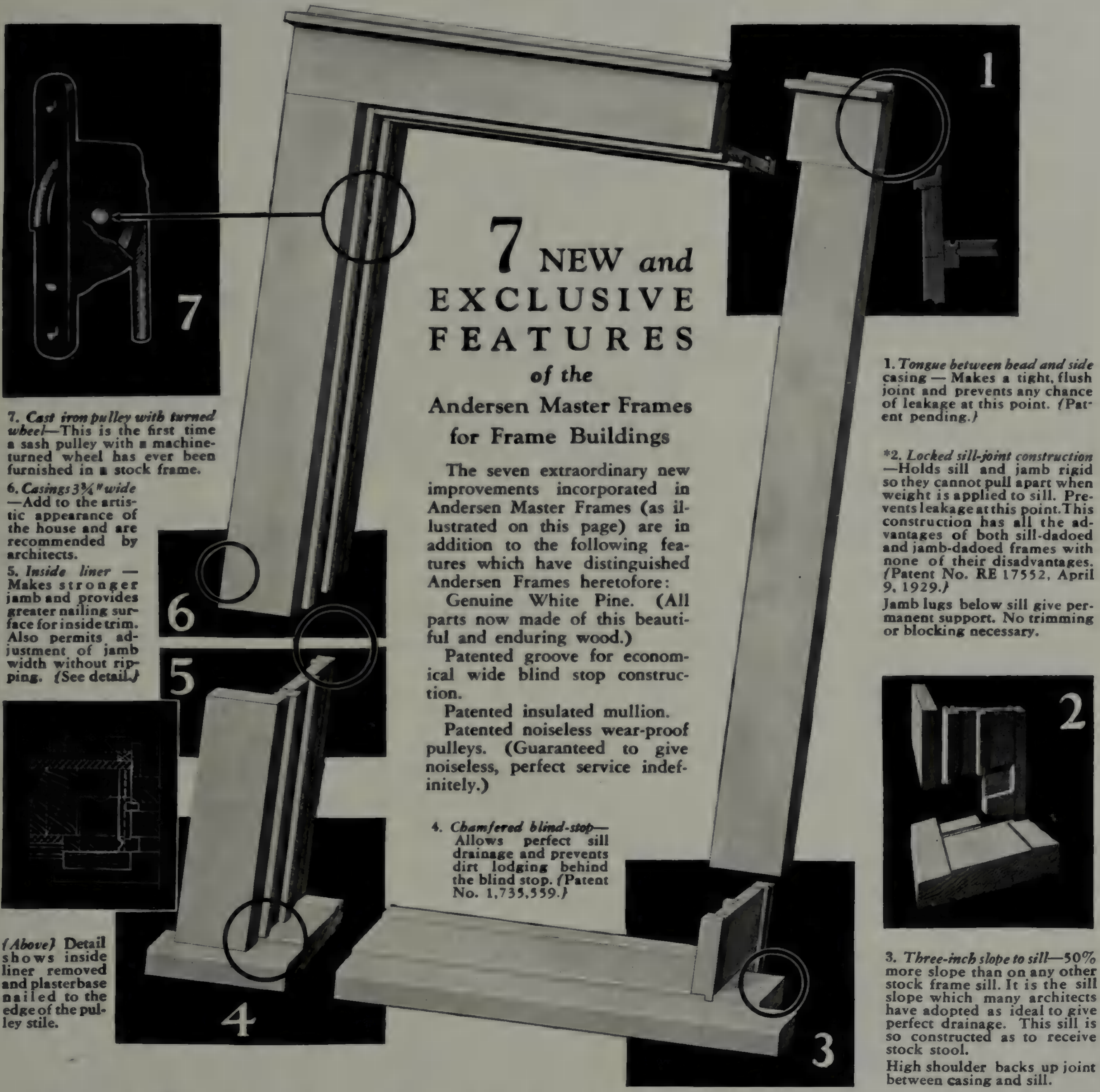

7 NEW and EXCLUSIVE FEATURES
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The seven extraordinary new improvements incorporated in Andersen Master Frames (as illustrated on this page) are in addition to the following features which have distinguished Andersen Frames heretofore:

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Patented insulated mullion.

Patented noiseless wear-proof pulleys. (Guaranteed to give noiseless, perfect service indefinitely.)

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*2. *Locked sill-joint construction*—Holds sill and jamb rigid so they cannot pull apart when weight is applied to sill. Prevents leakage at this point. This construction has all the advantages of both sill-dadoed and jamb-dadoed frames with none of their disadvantages. (Patent No. RE 17552, April 9, 1929.)

Jamb lugs below sill give permanent support. No trimming or blocking necessary.

3. *Three-inch slope to sill*—50% more slope than on any other stock frame sill. It is the sill slope which many architects have adopted as ideal to give perfect drainage. This sill is so constructed as to receive stock stool.

High shoulder backs up joint between casing and sill.

4. *Chamfered blind-stop*—Allows perfect sill drainage and prevents dirt lodging behind the blind stop. (Patent No. 1,735,559.)

5. *Inside liner* — Makes stronger jamb and provides greater nailing surface for inside trim. Also permits adjustment of jamb width without ripping. (See detail.)

(*Above*) Detail shows inside liner removed and plasterbase nailed to the edge of the pulley stile.

6. *Casings 3¾" wide* —Add to the artistic appearance of the house and are recommended by architects.

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The features illustrated above have been adapted to the entire line of Master Frames—standard double-hung frames with sub-sill, frames for brick veneer and masonry, casement and cellar frames. Call any Andersen Dealer for a demonstration of the Andersen Master Frames. You will get genuine satisfaction from the appearance and "feel" of the superbly milled clear White Pine. Write to us for complete catalog with details and specifications for the use of your drafting room.

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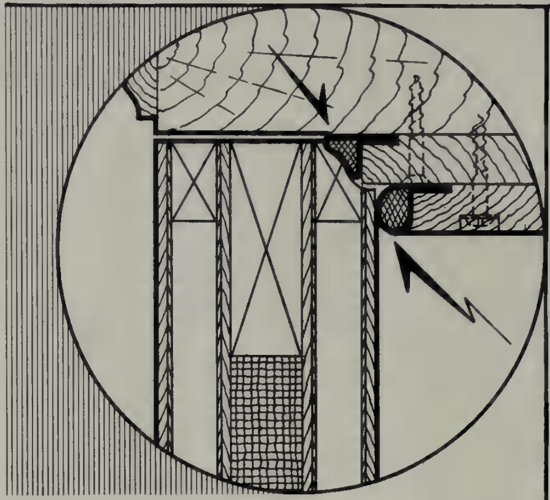
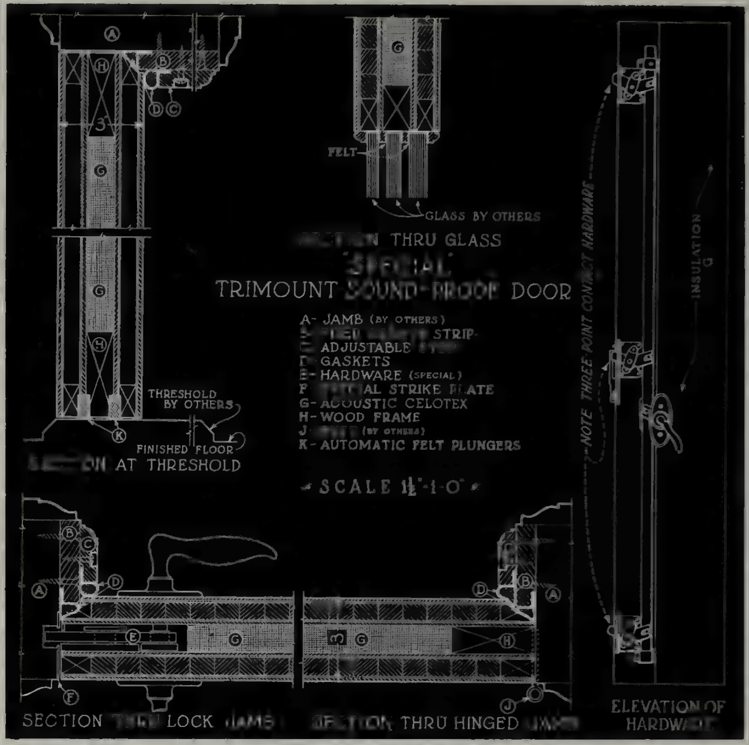
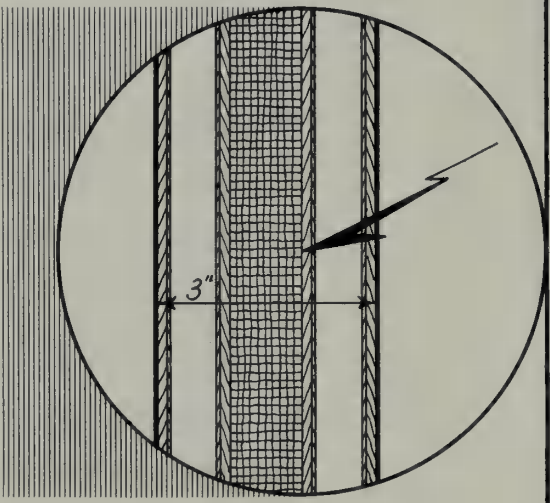


The head and side jambs are carefully sound insulated.



3PCH ★

TO RETARD NOISE



Inner core is packed with acoustic-celotex insulation.

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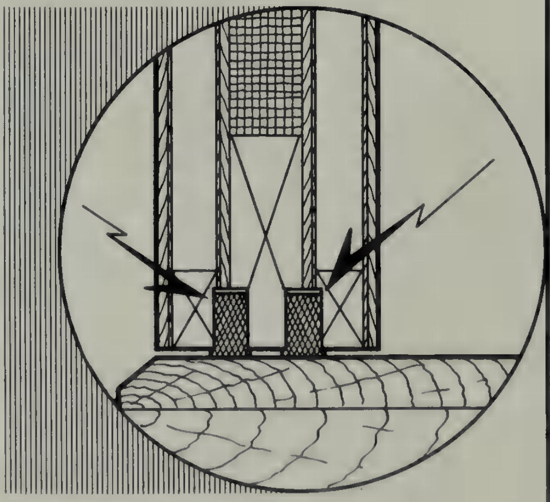

Two self-adjusting felt plungers effectively seal opening full length of threshold.

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Photo by courtesy of The New York Times

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3 *Sherry Netherlands Hotel*
Schultze & Weaver, Architects & Engineers
J. Livingston & Co., Electrical Contractors

4 *Savoy Plaza Hotel*
McKim, Mead & White, Architects
Tenney & Ohmes, Electrical Engineers
Walter H. Taverner Corporation, Electrical Contractors

5 *Brisbane Building*
Emory Roth, Architect
P. J. Keogan Co. Inc., Electrical Contractors

6 *Plaza Hotel*
Warren & Wetmore, Architects
Walter H. Taverner Corporation, Electrical Contractors

A Random Shot

—*but a bull's-eye*

THE New York Times photographer, when he took this striking photograph of part of New York's skyline, did not know that these six important buildings were all "Bryant Equipped". That was a random shot but there was no element of chance in the fact that *all of these buildings were "Bryant Equipped"*. Bryant products are in general use, not only in New York, but wherever civilization has penetrated. The Bryant Electric Company manufactures over twenty-five hundred different wiring devices, keeping abreast of all new applications of electricity and combining the most modern machinery, mass production, adequate financial resources and long experience in the manufacture of wiring devices of uniform excellence. Bryant policies, Bryant products, and the concrete evidence of thousands of BRYANT EQUIPPED installations have built and are keeping busy the largest exclusive wiring device factory in the world.

See our Catalogue in the new 4-volume
Sweet's for 1930, Vol. D, pages 5188 to 5192

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A-1

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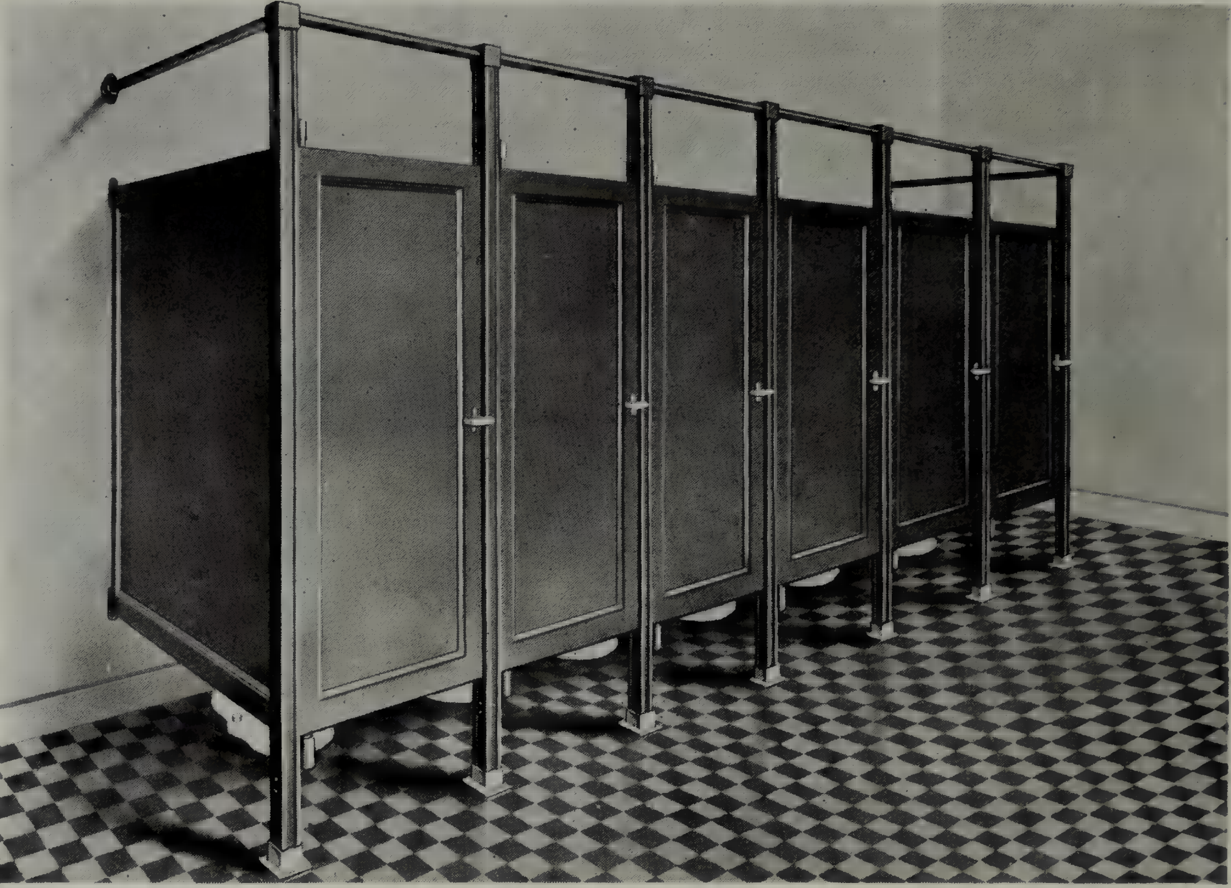

Unit-Panel Folder
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Now ready—the latest development in the modern trend toward simplicity and economy, offering these salient advantages:

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AND FINALLY—ECONOMY—Priced at the most reasonable figure consistent with substantial quality in a toilet installation. Before you buy—investigate Sanymetal Unit-Panel.

Sanymetal is made in several designs for steel toilet, shower, and dressing enclosures. Sanymetal also manufacturers steel-and-glass office and factory partitions in four types, and hospital cubicles. Write for descriptive literature on any of these products.

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A roof whose beauty ENDURES!

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"AND, for the roof . . . Carey Asfaltslate Shingles!" Whether club-house or fine home . . . that's the way Mr. Wm J. J. Chase, prominent Atlanta architect, specifies overhead beauty and protection.

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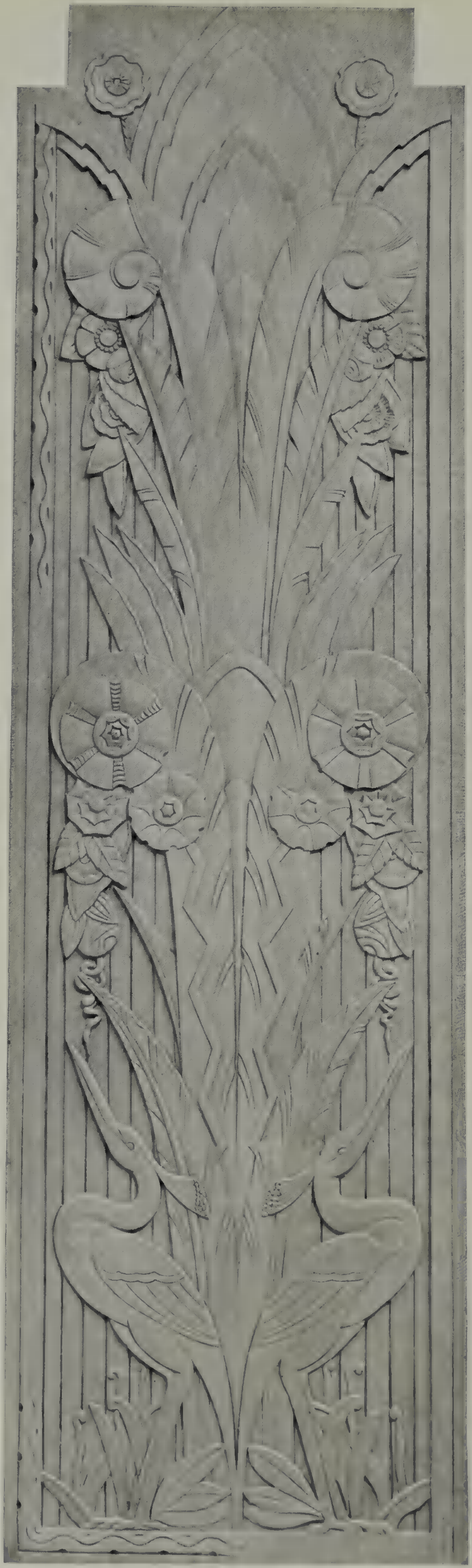

MODEL in work at studios of The Northwestern Terra Cotta Company, showing infinite detail which can be accomplished in terra cotta. After design of Rebori, Wentworth, Dewey & McCormick, Architects. On building at 737 N. Michigan Ave., Chicago.

When Prometheus stole fire from heaven he inspired the sons of men to transform humble clay into everlasting beauty; to imprison in glazes the blue of the sky, the emerald of the ocean, the glories of the rising and the setting sun; to model images of plants, animals, heroes and gods. Northwestern Terra Cotta offers to artists of today unlimited freedom of expression in form and color; to time and the elements a resistance that justifies its classification as a permanent, "fire-made" material.

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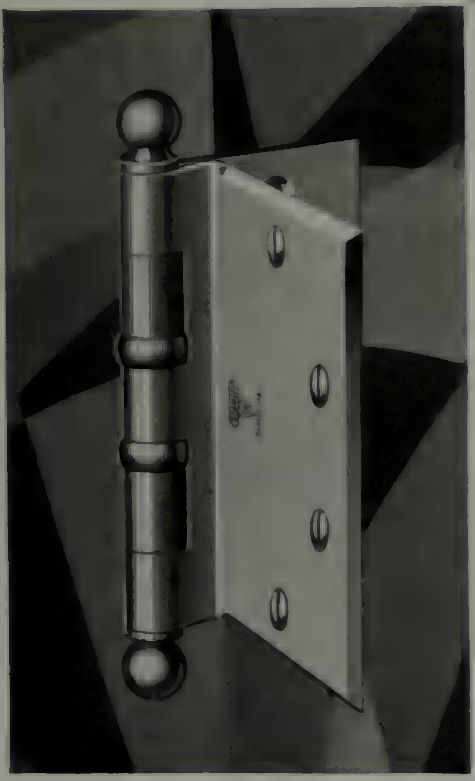


No. BB172

**STANLEY
BALL BEARING
HINGES**

PERMANENCY

PERMANENCY is one of the outstanding qualities of the new City Hall and County Court House at Phoenix, Arizona, architects Lescher & Mahoney together with Edward F. Neild.

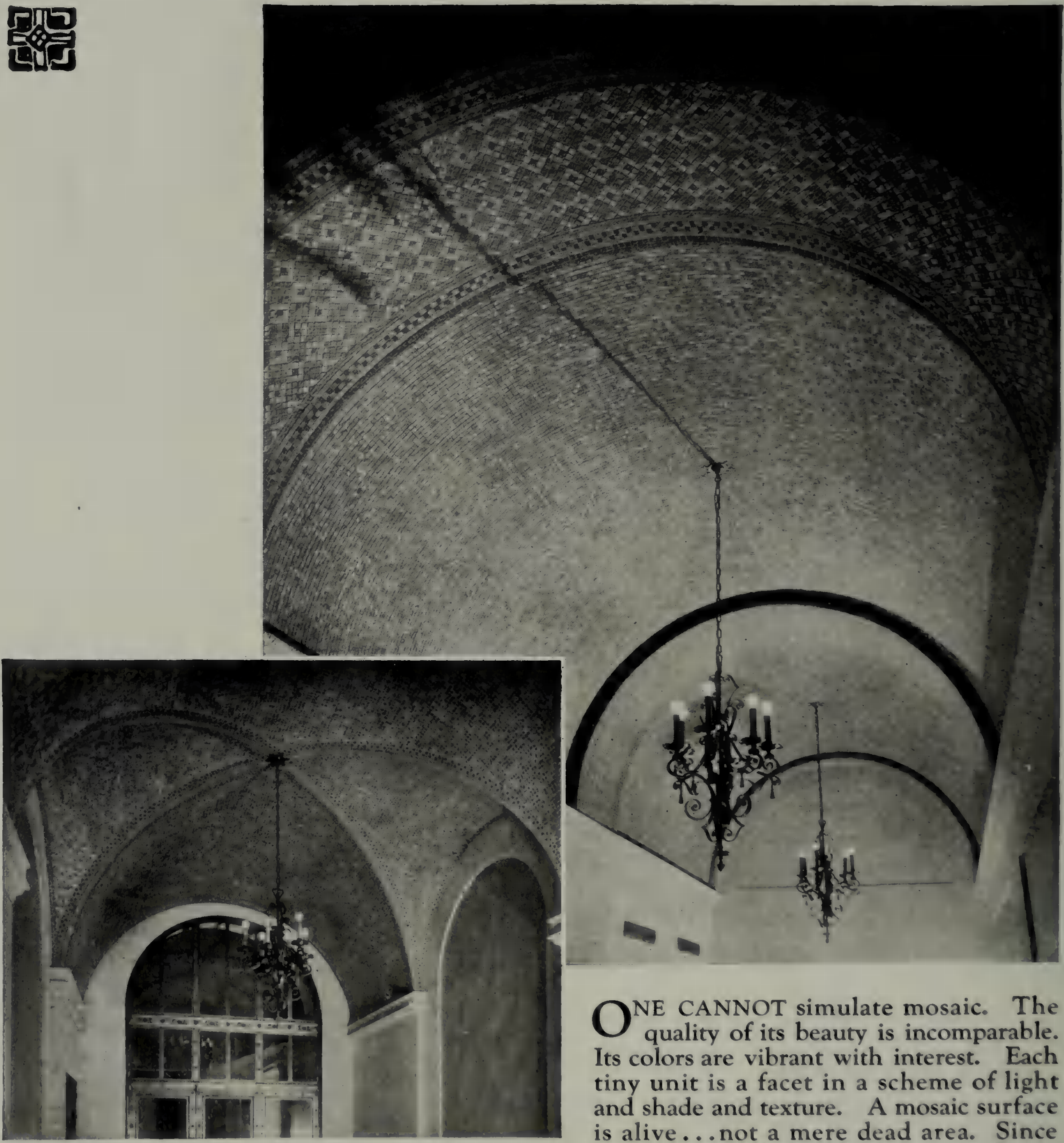
When considering the hardware equipment for the doors, emphasis was placed upon securing smooth, trouble-free operation for the life of the building. It is with pleasure that we announce the use throughout this new building of Stanley Ball Bearing Hinges.

As a reference book for hardware specification may we send you a copy of our "Architects Manual of Stanley Hardware"?

THE STANLEY WORKS
New Britain, Conn.

BATCHELDER TILES

CRINKLE MOSAICS



ENTRANCE HALL, TYLER BUILDING, NEW YORK
Laurence F. Peck, Architect
Installation by Alexander and Reid

ONE CANNOT simulate mosaic. The quality of its beauty is incomparable. Its colors are vibrant with interest. Each tiny unit is a facet in a scheme of light and shade and texture. A mosaic surface is alive . . . not a mere dead area. Since ancient times it has been accepted as a medium of peculiar strength and beauty.

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AGE-OLD BEAUTY

in a MODERN FLOOR MATERIAL

Greece . . . two thousand years ago. We hear the snap of the overseer's lash darting at naked backs of panting slaves. Inch by inch, the great block of polished stone rises . . . then sinks into place. A new temple to the Gods on Mount Olympus is in the making—to be marvelled at down through the centuries.

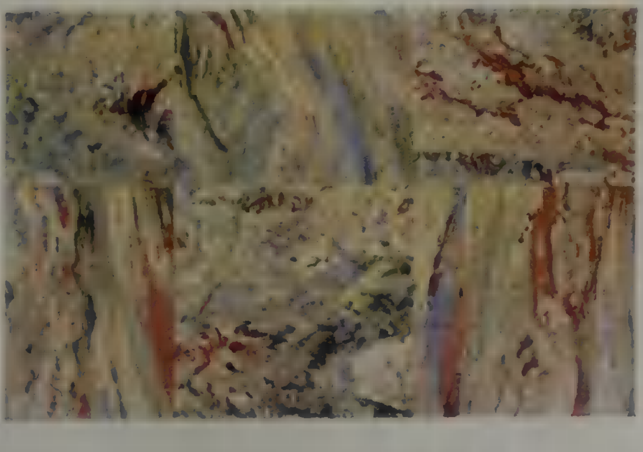
America . . . today. In an enormous factory room, a giant wheel so tall that it turns men into dwarfs, revolves slowly. Beauty issues in an endless stream.

Beauty (here lies the miracle) which shows no trace of its machine origin. With no hint of that tiresome sameness, that uninspired regularity which often betrays the touch of the iron workman.

In the new Karnean Marbled patterns in *Sealex* Inlaid Linoleum, colors run riot—defy discipline—disappear and reappear—writhe and twist themselves into unexpected shapes and courses. They parallel the astonishingly gorgeous, accidental beauty of Nature!

Below is illustrated one of the new *Sealex* designs in which these rare marble markings appear. This pattern represents a departure from the popular "checker-board," such as that illustrated at the left. You will notice that although the veinings of adjoining tiles run at right angles, only one kind of marble effect is used, resulting in a more restful pattern than those floor designs in which more pronounced color contrasts are evident.

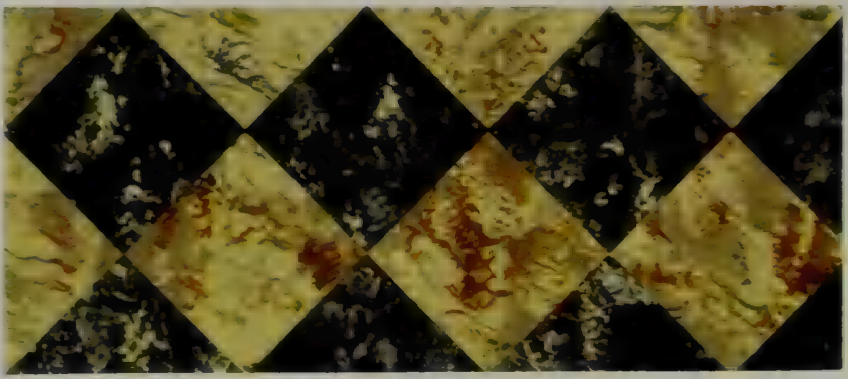
On the next page are reproduced a few more interesting innovations in linoleum design, typical of the *Sealex* floors offered for 1930.



The "*Foyer*" pattern (Sealex Linoleum No. 3104) combines Blue Belge and Italian white marbled block effects, a dignified floor adapted to a great variety of uses. At the right is "*Leonardo*" (Sealex Linoleum No. 3225), quite remarkable for its reproduction of Coralline Breccia marble, quarried on the island of Scio.

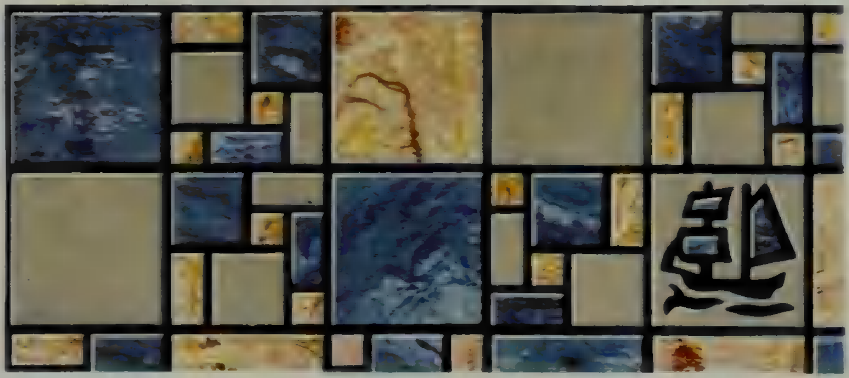
See next page . . .

BELOW are shown four of the new *Sealex* Linoleums. Hundreds of other patterns are reproduced in our new catalog, which we will be glad to send upon request.



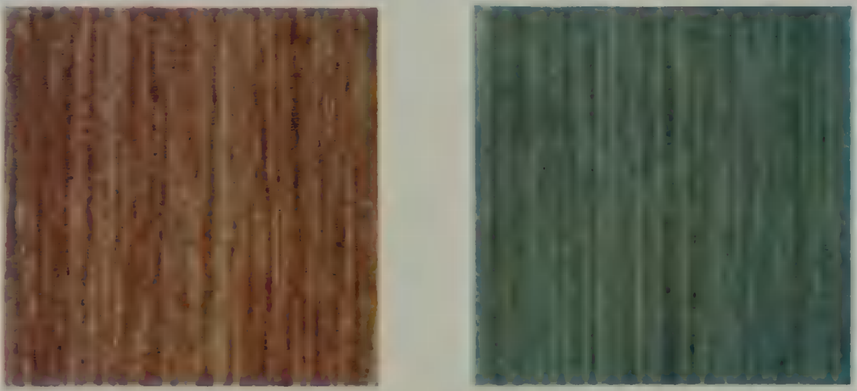
"Sea Rock," No. 3037

One of many patterns available in the realistic Karnean Marbled effects. In the small illustration it is impossible, of course, to do justice to the wonderful coloring and veinings.



"Zuyder Zee," No. 2600

In this and other patterns of *Sealex* Embossed Inlaid Linoleum, each tile is slightly *raised* above the "mortar line"—giving an interesting effect of texture and surface.



New Jaspé Effects

The new pastel shades in *Sealex* Jaspé Linoleum will be welcomed by architects who realize the possibilities of this subdued, yet decorative, type of floor. Illustrated here are "Roseglow" and "Lake-blue."

BONDED FLOORS are floors of *Sealex* Linoleum and *Sealex* Treadlite Tile, backed by a Guaranty Bond issued by the U. S. Fidelity and Guaranty Company. They are installed by Authorized Bonded Floors Contractors, located in the principal cities of the country. Only firms of exceptional standing in their communities are given this authorization. Authorized Bonded Floors Contractors are the pick of the country's flooring contractors—that is why we can afford to back their installations with our Guaranty Bond.

CONGOLEUM-NAIRN INC., *General Office:* Kearny, N. J.

BONDED FLOORS

SEALEX LINOLEUM AND TILE BACKED BY A GUARANTY BOND

See preceding page

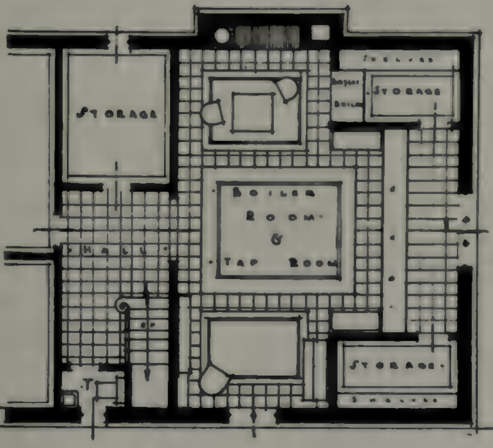
VALUE INSURANCE
which your client will appreciate

AT THE TIME of its erection the residence designed for immediate occupancy is not in competition with the speculatively-built house.

In the event of resale, however, it must successfully meet that competition or suffer serious price-depreciation.

FOR SALE
BY
OWNER

Two sales-features are today virtually standard in speculative houses above the bungalow class. The first is the LIVABLE BASEMENT. The second is AUTOMATIC HEATING.



Experience has demonstrated that few owners will refuse to approve the necessary additional allowance for these if this point of INVESTMENT-PROTECTION is pointed out at the time of submitting plans and specifications.

THE BRYANT HEATER &
MANUFACTURING CO.
17818 St. Clair Avenue - Cleveland, Ohio

NOTE: Complete information concerning the MODEL 45 Bryant Boiler, developed to make the Livable Basement wholly practical, will be gladly furnished on request, together with a portfolio of color-plates of Livable Basements.

BRYANT GAS HEATING

© B. H. M. C.

Well-to-do clients willingly pay for insulation that gives comfort.

Comfort comes *first* with these clients

They accept your judgment without question when you specify Armstrong's Corkboard

PARTICULAR clients want the very best. Beauty—yes! Convenience—yes! Comfort—most of all! Which means, for one thing, corkboard insulation in their homes. These are clients who are not content with half-way measures when they understand the advantages of insulation.

Comfort is *built in* when walls and ceilings are insulated with Armstrong's Corkboard. The house is protected against outside temperatures. Every room is as pleasantly comfortable in January as it is in June. Constant temperatures are easily maintained. The cork-lined house is warm in winter and cool in summer.

Because Armstrong's Corkboard is insulation that can be applied in thicknesses that are really adequate, the maximum of year-round comfort is assured. Heating is made easier and more uniform. Drafts are eliminated. Street sounds are shut out. And in summer, rooms are easily kept many degrees below outside temperatures.

Clients who must scrutinize cost, and even well-to-do clients, will be interested to know that the initial cost of Armstrong's Corkboard is soon repaid by the saving in fuel dollars. This ideal insulation is fire retarding. It will not deteriorate. It will not swell, shrink, or buckle. It is a perfect plaster base, and is easily erected in any type of construction. Are you planning a home for particular clients? Estimates on the insulation will be supplied promptly and without obligation. Armstrong Cork & Insulation Company, 901 Concord Street, Lancaster, Pa.

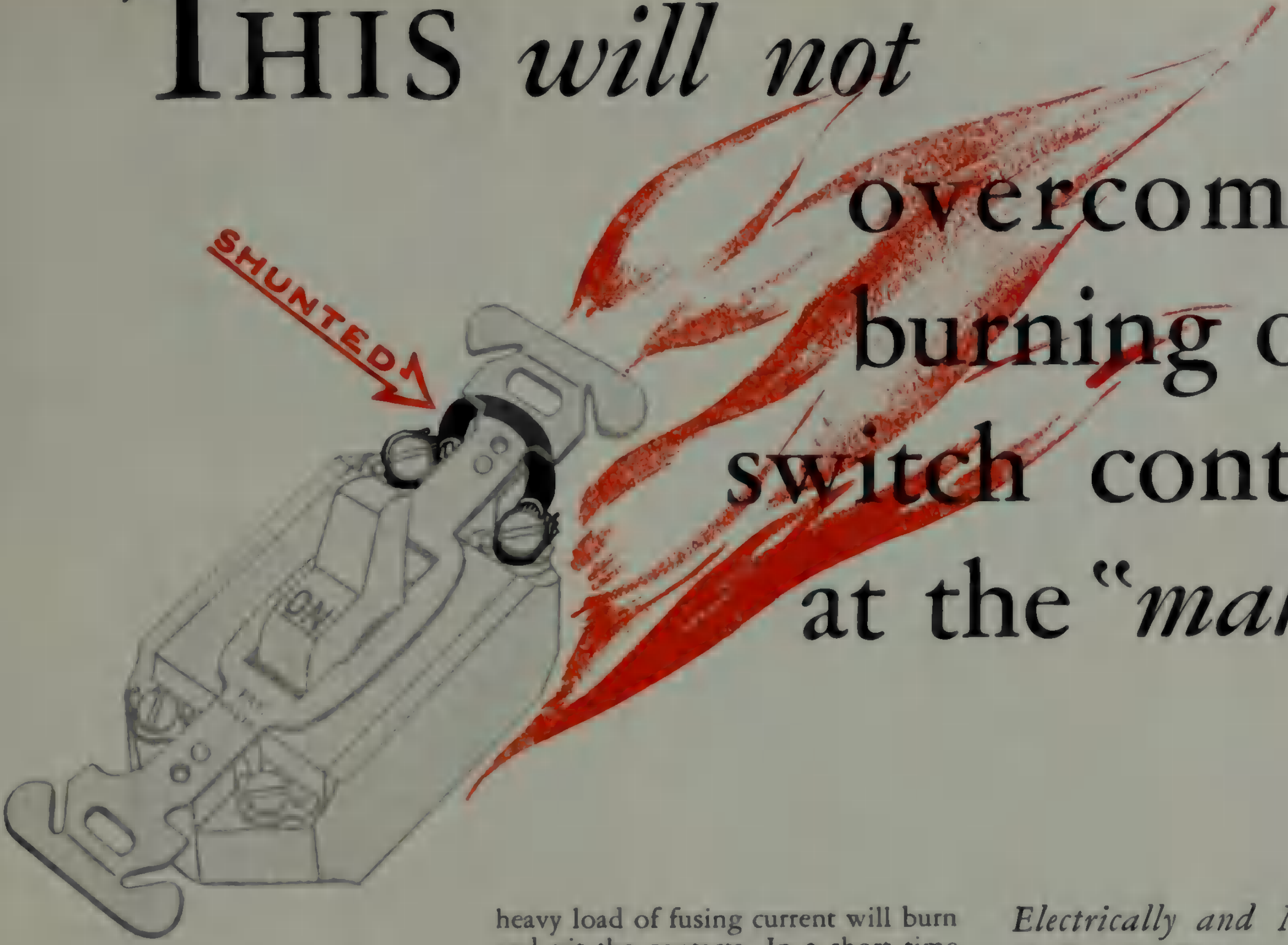
In town or country house, 1½" thickness of Armstrong's Corkboard for walls and 2" for roofs or ceilings is adequate for average conditions.

Armstrong's Corkboard is made in thicknesses from 1½" to 3" inclusive. The full thickness required is applied in a single layer.

Armstrong's Corkboard Insulation

Adequate Insulation for Comfortable Homes

THIS *will not* overcome burning of switch contacts at the "*make*"

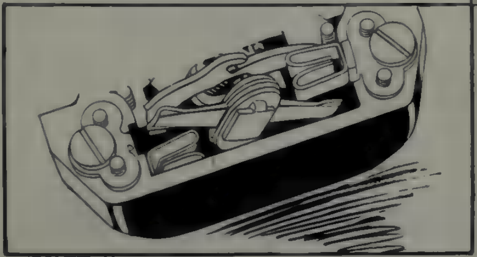


EXPERIENCE has shown that burning of contacts at the "make" cannot be overcome by shunting a double pole switch to operate as a single pole switch. Besides being ineffective and obviously uneconomical, this practice extends the trouble... It adds two more contacts to burn and pit.

Shunting merely increases switch capacity. It does not eliminate burning of contacts at the "make" because this trouble is not due to low carrying capacity. It has been traced directly to the design of the switch contacts.

A problem of contact design...

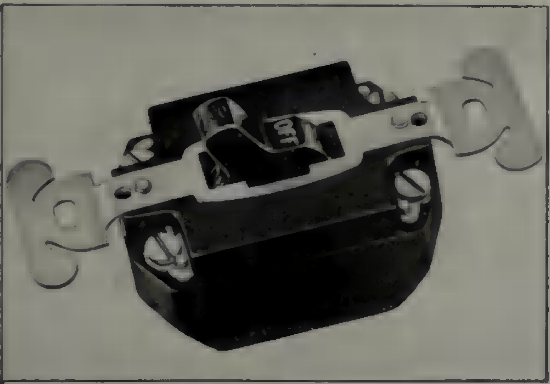
The contacts in a switch controlling the highly efficient type "C" lamps, now widely used, receive an enormous inrush of current at the instant of "make". The load is estimated at ten to twelve times the normal current after the cold lamp filament becomes heated. If the design of the contacts permits recoil when the contact blade strikes between the ends of the contact spring, the heavy load of fusing current will burn and pit the contacts. In a short time the switch will fail completely.



These new contacts will not burn at "make"

Hubbell engineers eliminated the chief cause of switch failure when they perfected the radically new form of contacts used in the new line of Hubbell Switches. These contacts are scientifically designed so that recoil and vibration are practically eliminated. *They will not burn and pit*—even when in circuit with type "C" lamps.

Check the other new Hubbell Toggle Switch features listed here. Further information will be gladly supplied.



HARVEY HUBBELL, INCORPORATED
BRIDGEPORT, CONNECTICUT
Boston Mass., 176 Federal Street; Atlanta, Ga., H. C. Biglin, 138 Marietta Street; New York, N.Y., 122 E. 42nd Street; Chicago, Ill., 318 W. Washington Street; Denver, Colo., T. H. Bodfish, 1109 Broadway; Philadelphia, Pa., Fifth Street, Phila. Bourse (Exhibition Dept.)

Electrically and Mechanically Perfect in Design—"Approved"

A radically new form of contact spring scientifically designed so that two different rates of vibration are set-up in the spring; one tending to counteract the other. Thus recoil is practically eliminated in the ends of the contact spring when the solid metal contact blade strikes between them. As a result, burning and pitting of the spring is prevented —even when in circuit with type "C" lamps.

An automatic "kick off" prevents sticking of blades in contact.

Commutator support is perfectly insulated. Commutator blades rigidly riveted to carrier, insuring positive alinement.

Spring arm is pivoted on a round shaft, seated in a symmetrical bearing, facilitating faster, smoother action without wear.

Operating mechanism is separate from the bridge and perfectly insulated.

A solid bridge with ears lies in a recess across Bakelite cover — entirely insulated; perfect alinement and rigidity insured.

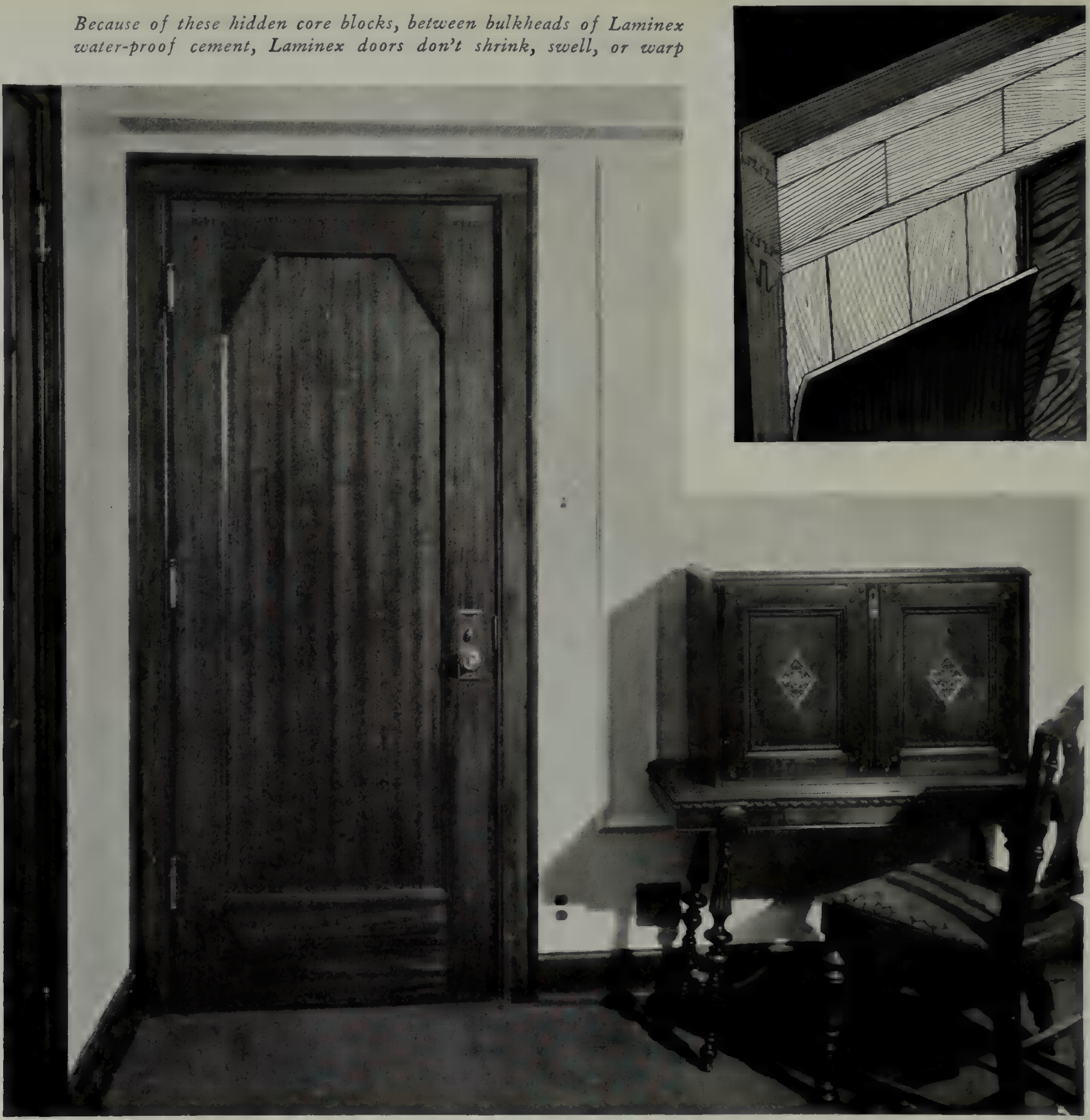
Each wiring terminal is held by two screws. Bakelite case completely encloses mechanism.

A complete line to meet any need—

9801—Single Pole, 5 amps. 250 volts; 10 amps. 125 volts
9802—Double Pole, 10 amps. 250 volts
9803—3-way, 5 amps. 250 volts; 10 amps. 125 volts
9804—4-way, 2 amps. 250 volts; 5 amps. 125 volts
9805—Single Pole, 20 amps. 250 volts
9806—Double Pole, 20 amps. 250 volts

HUBBELL
Toggle Switches

Because of these hidden core blocks, between bulkheads of Laminex water-proof cement, Laminex doors don't shrink, swell, or warp



Much admired at the beautiful James Russell Lowell Apartments is the ribbon grain of Philippine Laminex

A PHILIPPINE LAMINEX DOOR (TO SPECIFICATIONS)

JAMES RUSSELL LOWELL APARTMENTS, KANSAS CITY

NELLE E. PETERS, ARCHITECT THE PHILLIPS BUILDING COMPANY, CONSTRUCTION

The beauty of Philippine Laminex lies not alone in the long, slender ribbons of its grain. This remarkable imported hardwood will take a wide range of finishes, from light walnut to the deepest mahogany red, with the most striking effects. And furthermore, *trouble-proof* Laminex doors faced with selected, grain-matched veneers of this lovely wood are not at all expensive. For a copy of our manual which pictures some twenty-three stock Philippine Laminex designs, or quotations on plans and specifications of your own, get in touch with us today. Use the coupon.

THE WHEELER, OSGOOD COMPANY, DEPT. G-150, TACOMA, WASHINGTON: KINDLY SEND ME A MANUAL

ADDRESS NAME

FIRM

Chicago's Lake Front Development

ARMORY FOR ILLINOIS NAVAL RESERVES—CHICAGO
ZACHARY T. DAVIS, *Architect*
C. HERRICK HAMMOND, *State Architect*

again includes

Featherweight Concrete
INSULATING ROOF SLABS

Lake Front
Projects Utilizing
FEDERAL PRODUCTS

- SHEDD AQUARIUM
- ADLER PLANETARIUM
- NAVAL ARMORY
- FIELD MUSEUM
- ART INSTITUTE
- 23rd STREET RETAINING WALL
- OUTER DRIVE LIGHT PLANT

Chicago's plan for developing and beautifying its magnificent lake front—public buildings, broad boulevards, fountains, parkways—calls for *permanent* construction—materials that will serve the future as effectively as the present. Thus *concrete*—in the form of Federal—is prominently represented in this great public development.

The newest additions—the Naval Armory and Adler Planetarium—are roofed with Featherweight Concrete slabs, assuring permanence, fire safety and freedom from maintenance.

These slabs are made of Haydite aggregate (*trapped air cells*) in place of sand, providing a strong concrete roof deck that *weighs as low as 10 lbs. per sq. ft.* and has new insulating value.

Our new "Catalog and Roof Standards" tells of this interesting development now in use on many of the country's finest public buildings as well as on industrial and railroad structures.

Made, Laid and Guaranteed by

FEDERAL CEMENT TILE COMPANY

608 South Dearborn Street Chicago
FOR OVER A QUARTER CENTURY

I*t started with SHIPS*

AND

Paul Revere

The Battle Between the U. S. S. Constitution and H. M. S. Guerriere

THE CRY OF 1800 was for ships. And the cry of the shipbuilders was for copper to sheath hulls...because copper does not rust.

This was the need that inspired Paul Revere. It was he who discovered the secret of drawing malleable copper under the hammer. It was he who established the first copper rolling mill in America.

Paul Revere drew the copper bolts that fastened the timbers of the historic Constitution. He rolled the copper sheets for this and many another famous frigate.

Revere sheet copper also became popular for roofing. It was used on the dome of Boston State House, Old North Church, City Hall in New York, and other fine public buildings followed suit.

Revere rods found a most significant use as lightning arresters, the beginning of the union between copper and electricity. When the automobile came, its inventors naturally turned to copper and brass for the radiator, the electrical connections, the supply lines, the hundred and one special parts. Since then, almost every new invention has brought a new use for copper and brass.

THUS . . . in 130 years, those shipyard beginnings of Paul Revere have led to the electro-automotive-copper age of today. And in all these new needs, the name Revere is still in the very front ranks of the march of industry. Under it today are seven plants operating 25% of the country's copper and brass rolling mill capacity, including the two largest copper mills of the country.

Revere Copper *and* Brass

INCORPORATED

Divisions: **Baltimore** *Copper Mills, Baltimore, Md.* . . **Dallas** *Brass & Copper Co., Chicago, Ill.* . . **Higgins** *Brass & Manufacturing Co., Detroit, Mich.* . . **Michigan** *Copper & Brass Co., Detroit, Mich.* . . **Rome** *Brass & Copper Co., Rome, N. Y.* . . **Taunton-New Bedford** *Copper Co., Taunton, Mass.*

GENERAL OFFICES: ROME, N. Y.

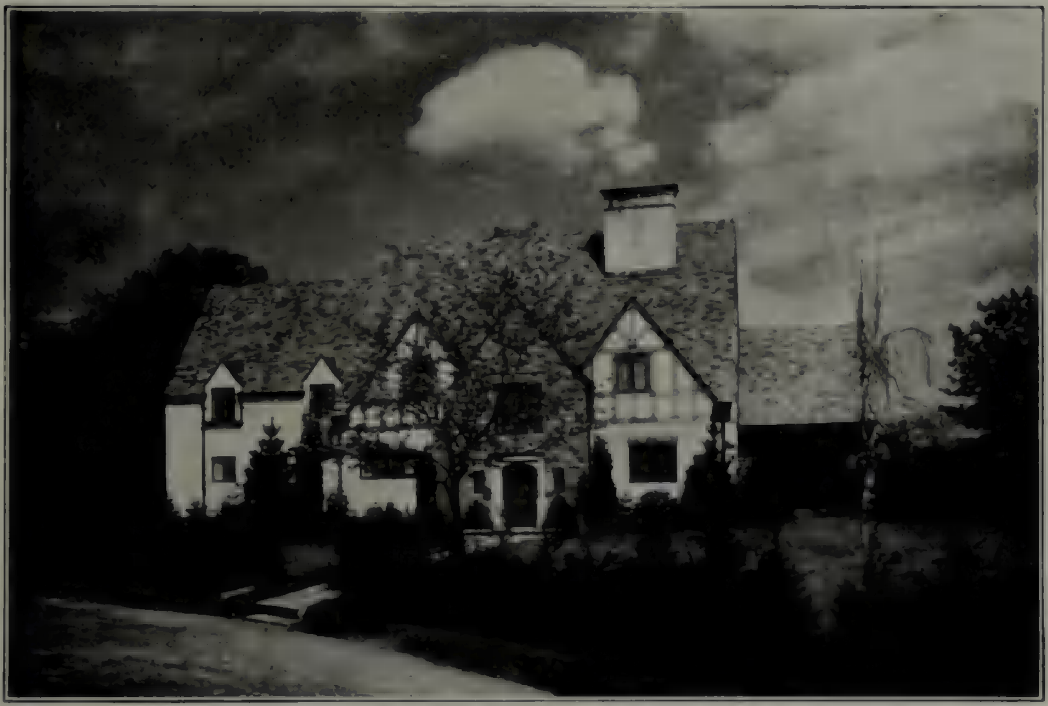
Member of the Producers' Council

Uninterrupted Beauty

Sheldon's is not only "the roof of eternal beauty;" it is also "the roof of uninterrupted beauty."

Uninterrupted beauty because appreciated whenever seen, be it in moonlight, in a flood of summer sun, under the darkest clouds, dry as a bone, or deluged by torrential rains.

Nothing ever detracts from the complete satisfaction experienced by all concerned when you specify a Sheldon slate roof, because it has forever and uninterruptedly the beauty of appropriateness.



The residence here shown under a cloudy sky is that of Richman Proskauer, Larchmont, New York; R. H. Scannell, Architect. Its roof is a mixture of the right percentages of Sheldon's Unfading Green, Bronze Pheasants, Golden Pheasants, Unfading Mottled Gray, Unfading Gray, and Weathering Green.

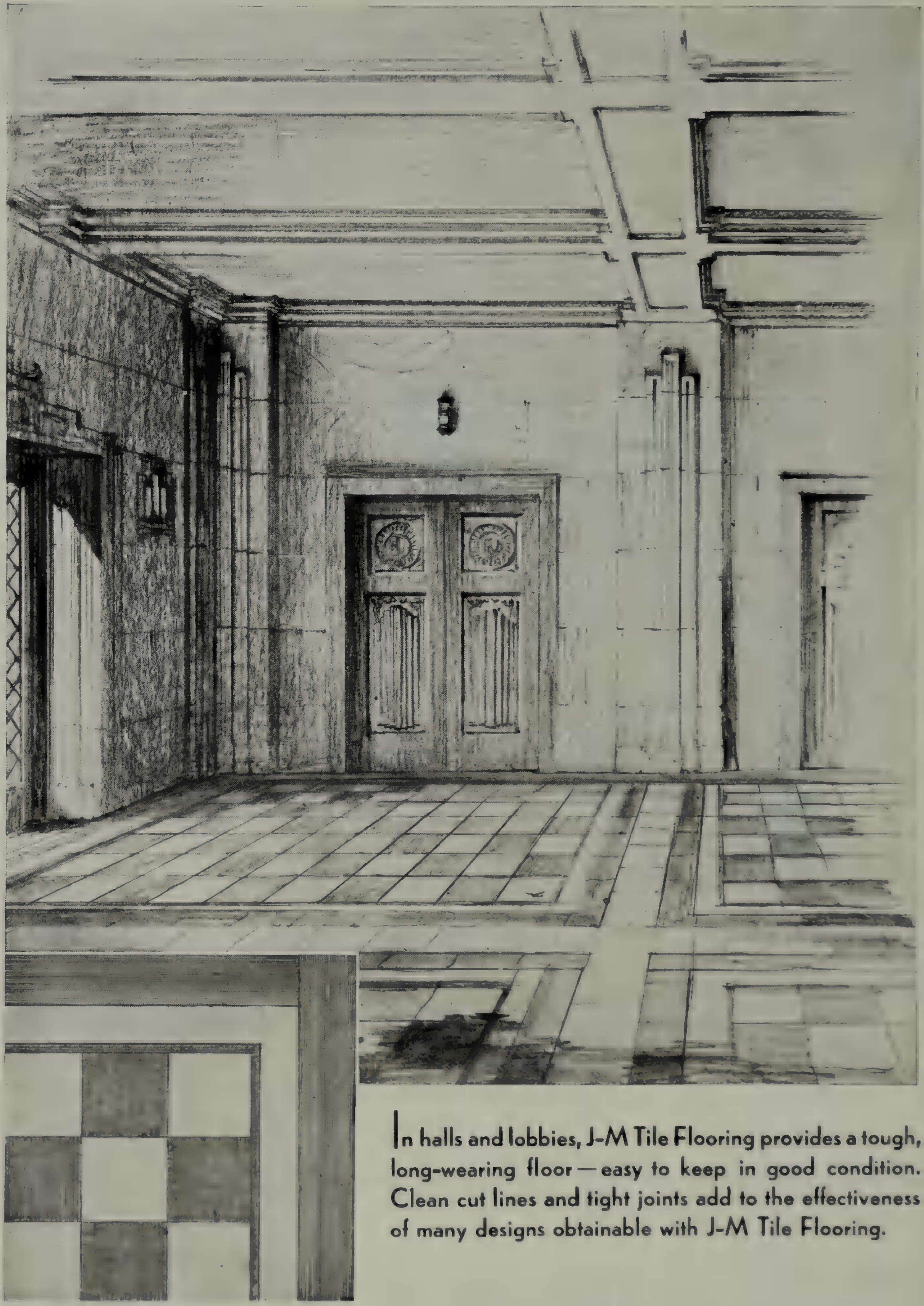
You have noticed the contrast between roof and walls. A Sheldon slate roof may blend in with the walls, differ from them in various degrees, and even contrast with them, according to taste and other factors to be considered, and in the consideration of which we are at the service of the Architect.

F.C. SHELDON SLATE CO.

GENERAL OFFICES · GRANVILLE · N · Y ·

· BRANCHES IN PRINCIPAL CITIES ·

JOHNS-MANVILLE
JM
PRODUCTS



In halls and lobbies, J-M Tile Flooring provides a tough, long-wearing floor—easy to keep in good condition. Clean cut lines and tight joints add to the effectiveness of many designs obtainable with J-M Tile Flooring.

Johns-Manville
TILE FLOORING
Type A

JOHNS-MANVILLE
JM
PRODUCTS

J-M Tile Flooring
.... resilient and decorative

ARCHITECTS have often been confronted with a real problem in the selection of a flooring that will meet all conditions, that will look well, not only at the start, but will continue to do so after years of use.

J-M Tile Flooring is a genuine contribution to better building. Years of use have shown that this type of flooring comes through the severest wear and preserves its appearance as time goes on. With this ability to stand rough service, it has the resilience so essential to comfort and quiet. It is available in a wide range of effective colors, and is most reasonable in cost.

A cement that is water-proof

The cement in which a flooring of this type is laid is a most important accessory. J-M Tile Flooring Cement is a unique product. For a number of years it has been used successfully with J-M Tile Flooring, forming a perfect and permanent bond between tile and underfloor — a bond which is not affected by dampness. For this reason, together with the fact that mineral gums are used in the manufacture of the tiles themselves, J-M Flooring will give good service in damp locations.

A thoroughly tested flooring

Installations of J-M Tile Flooring are giving successful service in practically all types of buildings. You can specify this flooring without hesitation. It is backed by the showing of actual performance and by our name.

Our Architectural Representatives will be glad to confer with any architect on matters referring to flooring. Our Architectural Representatives are, in fact, ready at all times to confer with you not only about flooring, but also about the widely varied Johns-Manville products which enter into building construction.

JOHNS-MANVILLE
JM
PRODUCTS

FOR THE BUILDING INDUSTRY

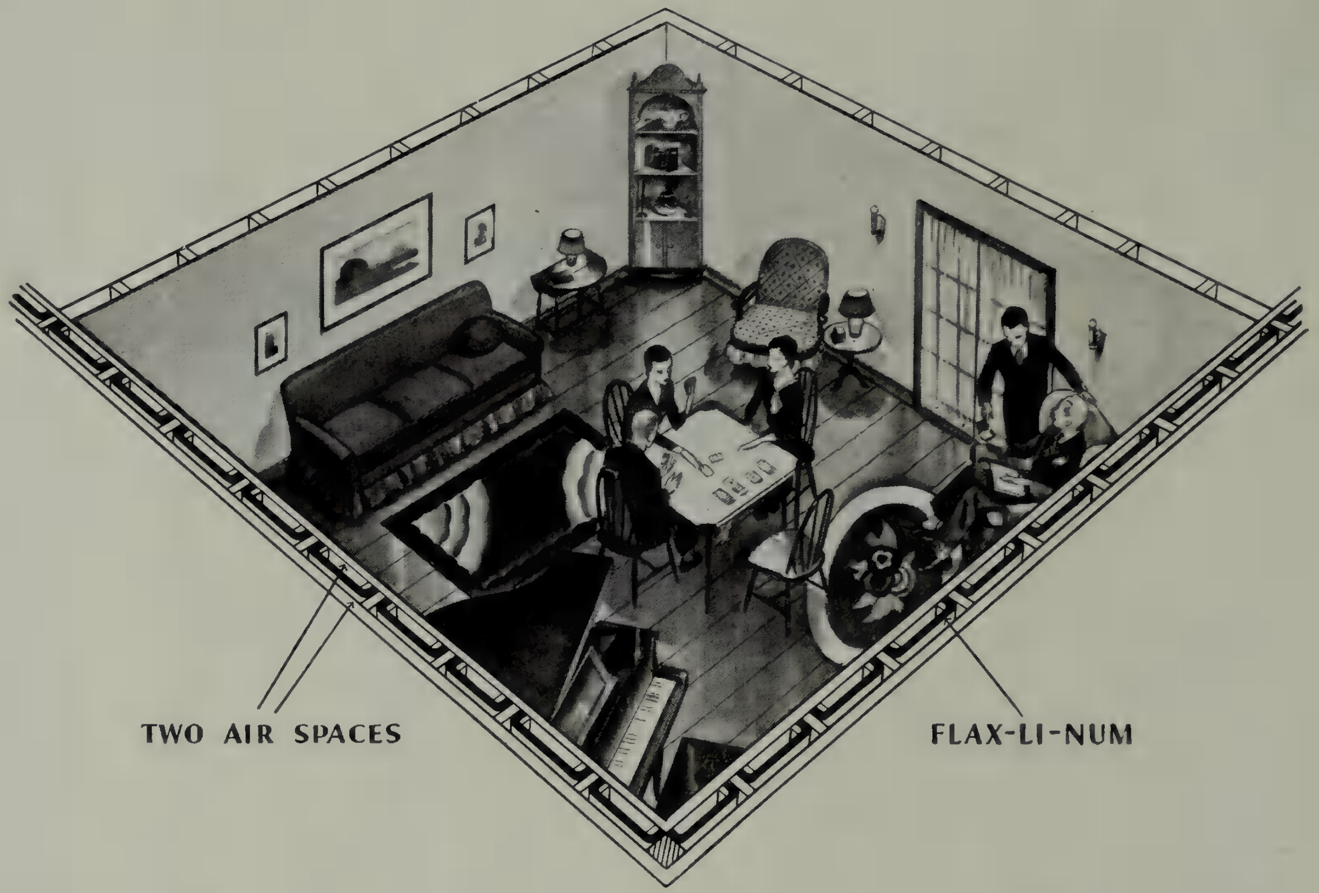
Acoustical Materials — Asbestocel Pipe Insulations — Asbestos and Asphalt Shingles — Built-up Roofs
Home Insulation — Insulating Board — Transite — Tile Flooring — Floridene Stone

Johns-Manville

New York Chicago Cleveland
San Francisco Toronto

To State the Case Bluntly

Insulation is most Effective when used as Insulation



FLAX-LI-NUM, Through Its "Two-Air-Space" Method of Application, is 50% More Effective in Preventing Heat Leakage

INSULATING a home in such a way that the owner will receive *full benefit from the added layer of insulating material,* is a separate and distinct step in construction. To combine it with some other step, such as plaster base or sheathing means the forfeit of a certain amount of insulating value. The principle is clearly illustrated by the FLAX-LI-NUM "two-air-space" method of application which makes possible a 50% increase of efficiency merely by correct application.

FLAX-LI-NUM is a semi-rigid insulating material, designed to be applied between the studs in a wall. It divides the air space into two parts, adding the resistance of two air spaces instead of one. The insulating value of an ordinary air space more than about one inch in width is the equivalent of about ¼ inch of insulating material. Therefore, by its application, FLAX-LI-NUM adds the equivalent of an extra ¼ inch of insulation. According to the U. S. Bureau of Standards, "The addition of a half inch layer of insulation in the middle of the air space in a frame wall is, therefore, the equivalent of adding about a ¾ inch layer at some other place in the wall".

It is this extra 50% insulating value that has made FLAX-LI-NUM the outstanding home insulant when great comfort and fuel economy are the results desired. It is this extra 50% insulating value that proves the truth of the statement that insulation is most effective when used as insulation.

FLAX-LI-NUM is made in uniform sized sheets . . of ½ inch and full one inch thickness. So perfectly has it been developed that its correct application is simple and fast. It slips between the studs and is held permanently in place with binding strips. It will not break, tear, crack or otherwise lose its insulating value. There is no loss from waste material . . . In the FLAX-LI-NUM Manual are complete recommended specifications. It is a valuable piece of literature for your reference files. You may have a copy.

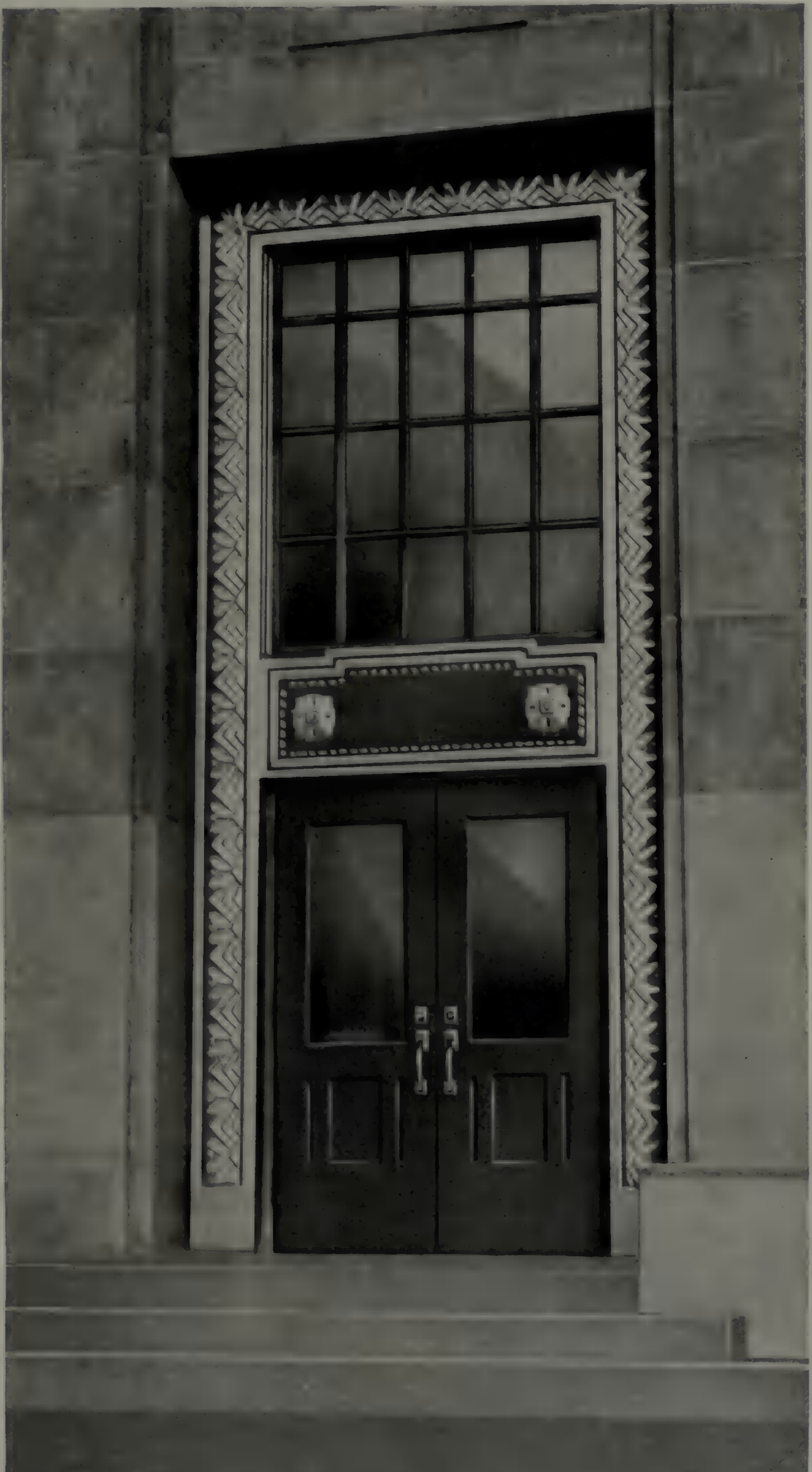
FLAX-LI-NUM INSULATING COMPANY
ST. PAUL, MINNESOTA

Flax-li-num
A CORRECT BUILDING INSULATION AND SOUND CONTROL MATERIAL

FLAX-LI-NUM INSULATING CO. AR-3
St. Paul, Minnesota

Send me complete information about Flax-li-num.
Also facts about the "two-air-space" method.

Name..
Address..
City..
State..

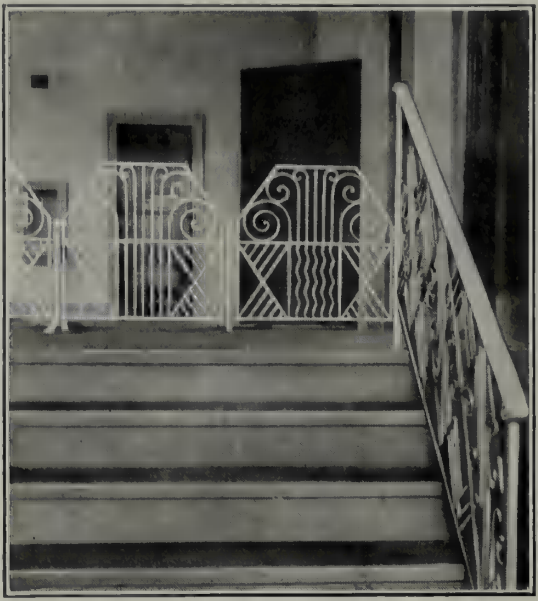


Main entrance to the new Michigan Diamond Telephone Exchange Building, Cleveland. Hadlow-Hughes-Hicks & Conrad, Inc., Cleveland, Architects: Mr. A. W. Baily, Cleveland, Company Architect: The Crowell-Little Construction Company, Cleveland, General Contractors: The Kilroy Structural Steel Company, Cleveland, Sub-contractors. The frame, as well as doors themselves, are made of Alloys of Alcoa Aluminum. Both are deplated and finished in high light.

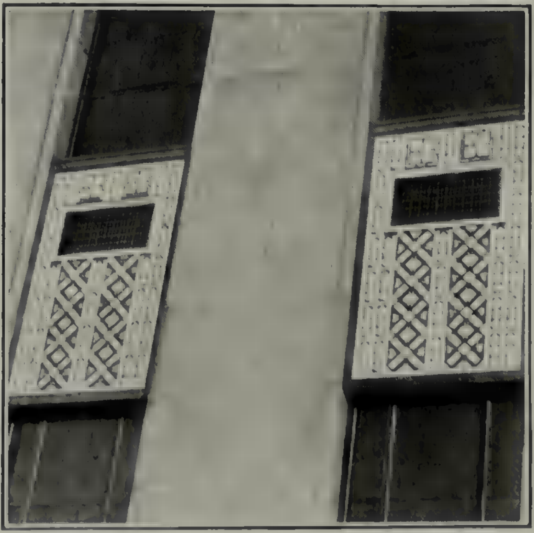
See next two pages for details.

SPANDRELS · SILLS · VENTILATOR GRILLES · DOOR FRAMES · EVEN

VERSATILITY



Total weight of this Alcoa Aluminum Fence and Stair Rail, 150 lbs.



Approximate weight of these Alcoa Aluminum Spandrels, 195 lbs. each.

The new Michigan Diamond Telephone Exchange Building in Cleveland is an interesting study for architects, as it shows the infinite possibilities of using Alcoa Aluminum in architecture.

In addition to the spandrels, foyer fence and stair rail illustrated here, the unit ventilator grilles, sills, vestibule radiator grille and frame, frames to entrance and lobby doors, and the main doors themselves are made of strong Alloys of Alcoa Aluminum. Sheet aluminum is used for ventilator louvers with aluminum wire cloth.

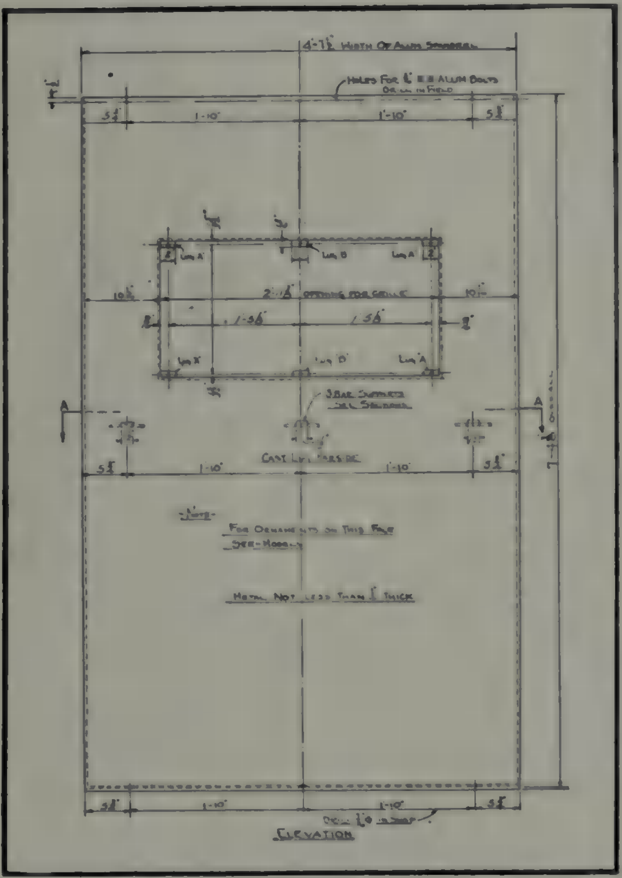
As Alcoa Aluminum weighs ⅓ as much as old-fashioned metals, it is much easier and cheaper to ship, truck and erect. In addition, it requires no plating, can be high-lighted, and the weather will not make it streak.

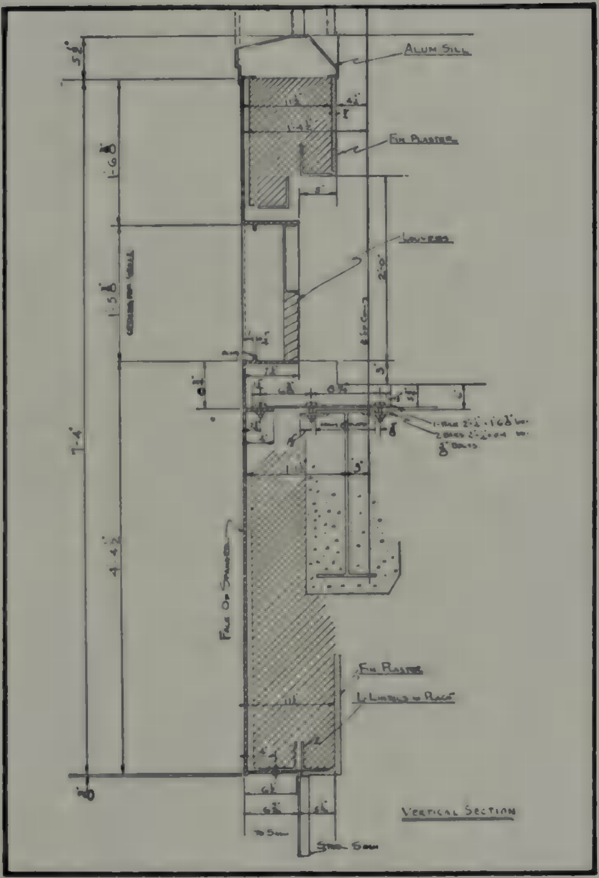
Our booklet, "Architectural Aluminum", describes interesting applications of Alcoa Aluminum. May we send you a copy without charge or obligation? ALUMINUM COMPANY of AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA. Offices in 19 Principal American Cities

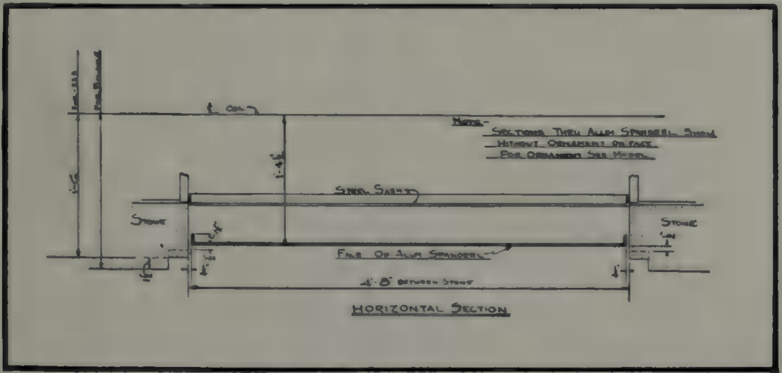
ALCOA

THE MAIN ENTRANCE DOORS • ALL MADE OF ALCOA ALUMINUM

SPECIFICATIONS


4'-7½" Width Of Alum Spandrel
Holes For ⅝" ▪▪ Alum Bolts Drill in Field
5⅜"
1'-10"
1'-10"
5⅜"
Lug A
Lug B
Lug A
10½"
2'-1⅛" Opening For Grille
10½"
1'-5⅛"
1'-5⅛"
Lug A
Lug D
Lug A
3 Bar Supports See Sections
A
A
Cast Lug This Side
5⅜"
1'-10"
1'-10"
5⅜"
Note-
For Ornaments On This Face See Model
Metal Not Less Than ⅜" Thick
5⅜"
1'-10"
1'-10"
5⅜"
Drill ⅞"ø in Shop
Elevation





"These Aluminum Spandrels, Sills, and other cast items shall be made of Alcoa No. 43 alloy, having a silicon content of 5%. The average tensile strength shall be 17,000 lbs. per square inch and the average elongation in two inches 5%. The weight shall not exceed .097 pounds per cubic inch. The surface shall be free from imperfections and in all respects equal to sample submitted."

ALUMINUM

ALCOA

Residence
Greenwich, Conn.

Warren & Clark
Architects

Perfect Harmony

Tudor Stone is peculiarly desirable for the house with a broad expanse of roof. For here one has a rare opportunity to utilize the slate in a multitude of shapes, sizes, and color tones, and so design a roof of exceptional beauty.

Rising·and·Nelson·Slate·Company

WEST PAWLET, VERMONT
Architects' Service Department: 101 Park Avenue, New York City
CHICAGO DETROIT PHILADELPHIA BOSTON

ATLANTA CITY HALL, ATLANTA, GA.
Photo © G. Lloyd Preacher & Co., Inc., Architects and Engineers. Anderson & Majors, Painting Contrs.

PRATT & LAMBERT VARNISH PRODUCTS

TWELVE hundred gallons of Lyt-all products were used on the walls and ceilings of this imposing new city hall at Atlanta, Ga. The use of Lyt-all, the Universal Wall Coating, insures the beauty and protection of these surfaces for a long period of time.

Lyt-all is an ideal finish for the walls of office buildings, schools, residences, theaters and stores, where superior results must be secured economically. Its beauty and decorative qualities make it suitable for the finest residential work; its practicability, pure color and durability make it the logical finish for warehouses and industrial plants.

Ask for the attractive Lyt-all color card or other data which the nearest P&L Architectural Service Department can give you.

PRATT & LAMBERT-Inc., 108 Tonawanda Street, Buffalo, N. Y. (Phone Delaware 6000); 3301 38th Avenue, Long Island City, N. Y. (Phone Stillwell 5100); 320 West 26th Street, Chicago, Ill. (Phone Victory 1800). Canada: 28 Courtwright Street, Bridgeburg, Ontario.

TRADE MARK
P&L
REG. U.S. PAT. OFF.

"Save the surface and you save all" Paint & Varnish

BATES BROS. SEAM-FACE GRANITE IN THE STERLING MEMORIAL LIBRARY AT YALE

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Trinity Lutheran Church, Schenectady, N. Y.	George W. Conable
Saint Catherine's Church, Elizabeth, N. J.	Neil J. Conveary
COLLEGES	
Elm Dormitories, Yale University	James Gamble Rogers
Botany Building, Wellesley College	Day and Klauder
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MISCELLANEOUS	
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Harkness Mausoleum, New York City	James Gamble Rogers
Pynchon Memorial Building, Springfield, Mass.	M. H. Westhoff
Dormitory for Franciscan Fathers, Granby, Mass.	Dunn and Gilson
State Armory, Norwood, Mass.	McLaughlin and Burr
Exchange St. Bridge, Pawtucket, R. I.	J. R. Worcester Co.
Steps to Church and Terrace, Chappaqua, N. Y.	Maginnis and Walsh

BATES BROS. SEAM-FACE GRANITE CO., INC.
Quincy, Massachusetts

Quarriers of B Granite Ashlar

BARE KNEES ARE SAFE ON BLOXONEND FLOORS

(NO SLIVERS POSSIBLE)

Any desired resilience may be obtained by laying BLOXONEND over 1 x 4 in. floor strips spaced to suit.

Illustrated above is a BLOXONEND Floor in the Isaac E. Young Junior High School, New Rochelle, N. Y.—Albert Leonard, Supt. of Schools. The building was designed by Starrett & Van Vleck, prominent school architects of New York City.

The Physical Director has stated that he would consider the exercise pictured unsafe on any other wood floor due to the splinter hazard. BLOXONEND Flooring cannot splinter because the end grain fibres form the surface.

This Flooring is handsome in appearance, quiet, resilient, fast, and stays smooth. It is going into the gymnasiums and shops of finer type schools everywhere. Write for sample and specifications.

CARTER BLOXONEND FLOORING COMPANY
Kansas City, Missouri
Branch Offices in Leading Cities—See Sweet's

BLOX-ON-END FLOORING

Bloxonend is made of Southern Pine with the tough end grain up. It comes in 8 ft. lengths with the blocks dovetailed endwise onto baseboards

Lays Smooth
Stays Smooth

The graceful grouping of sylvan foliage is suggested by this P*lastic* P*aint* F*inish* . . .

DUTCH BOY . . .

Textured with a Paint Brush

NATIONAL LEAD COMPANY

New York, 111 Broadway · Buffalo, 116 Oak Street
Chicago, 900 West 18th Street · Cincinnati, 659 Freeman Avenue · Cleveland, 820 West Superior Avenue
St. Louis, 722 Chestnut Street · San Francisco, 235 Montgomery Street · Boston, National-Boston Lead Co., 800 Albany Street · Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue · Philadelphia, John T. Lewis & Bros. Co., Widener Building.

THIS is the way you can achieve beautiful sidewall decorations that express, in artistic low-relief textures, your own individual conceptions even to the most imaginative details.

Scenes perhaps visualized from Nature: trees, hills, sea and clouds—all may be strikingly suggested through the simple use of Dutch Boy white-lead and oil plastic paint.

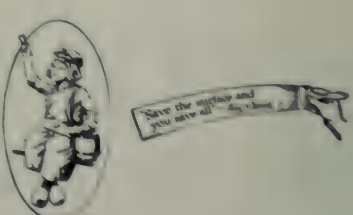
This plastic paint is not expensive. The painter mixes it from materials he already has in his shop: Dutch Boy white lead, whiting, Dutch Boy flatting oil and drier. It is easy to apply . . . sets up over night . . . and may be tinted with regular colors-in-oil just like any other white-lead paint.

When textured, which may be done with a sponge, paint brush, whiskbroom, graining comb, or in many other ways, the paint is complete as a finish, or may be glazed if desired. It gives a finish that is thoroughly washable and durable.

The illustrations indicate the beauty and originality of the effects that are obtainable.

For further information about white-lead and oil plastic paint, and illustrations of various textures, write to our Department of Color Research and Decoration for the booklet, "White-Lead and Oil Plastic Finishes". Address your inquiry to our nearest branch.

The well-known brand of Carter White Lead is also made by the National Lead Company. In purchasing either Carter or Dutch Boy White Lead, the buyer is assured of obtaining white lead of the highest quality.


Save the surface and you save all

DUTCH BOY WHITE LEAD

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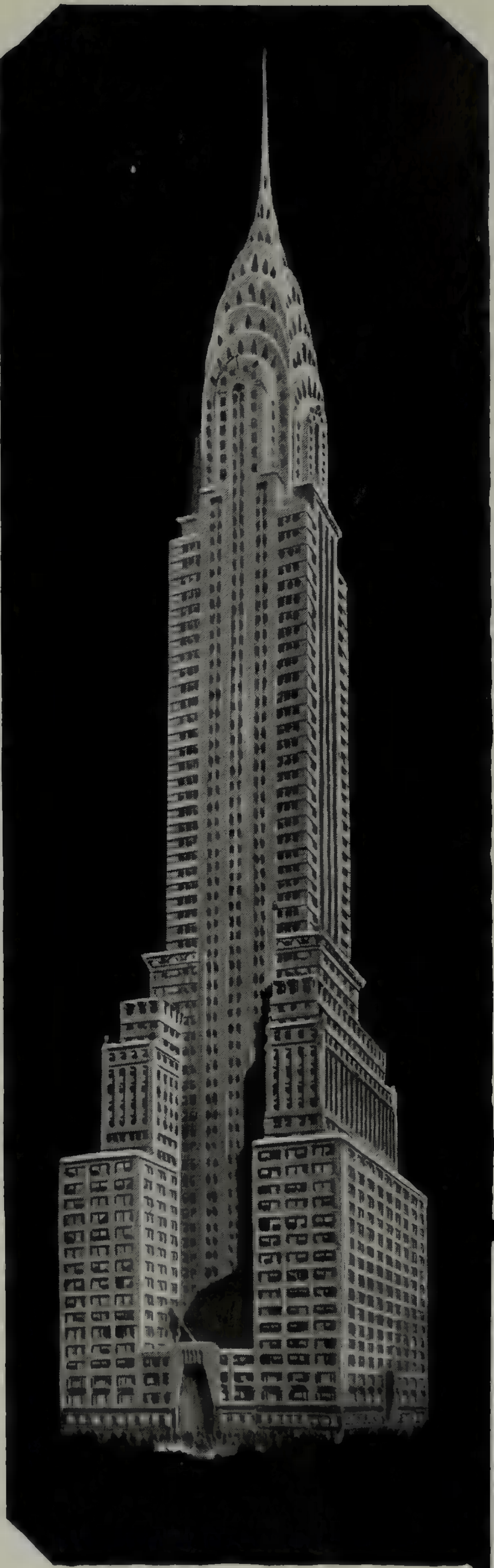

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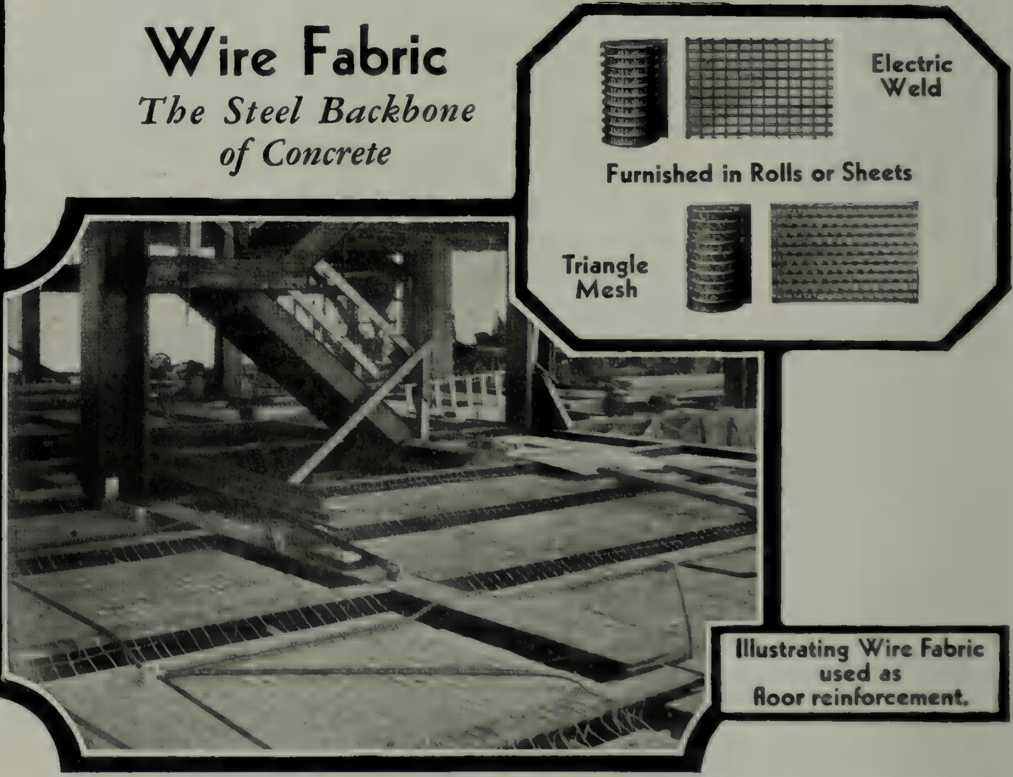
TYPIFYING the spirit of achievement in modern architecture, the new Chrysler Building also exemplifies the important part being played by wire fabric in every type of structural development.

Here — where cinder concrete floor arch reinforcement is called for, American Steel & Wire Company Wire Fabric is recognized as standard. Its definite factors of safety, its great strength and permanency, win for it the enthusiastic approval of architects and contractors.

Information, including engineering data on Wire Fabric for concrete reinforcement, will be furnished on request.

Wire Fabric

The Steel Backbone of Concrete



Illustrating Wire Fabric used as floor reinforcement.

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These are but a few of many outstanding characteristics of this remarkable plastering material. You will find the complete story in a new booklet, just off the press. A copy will be sent you gladly on request.

Rely on LIME
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An organization of leading lime manufacturers formed to encourage a better appreciation of the economic value of lime in all its uses.

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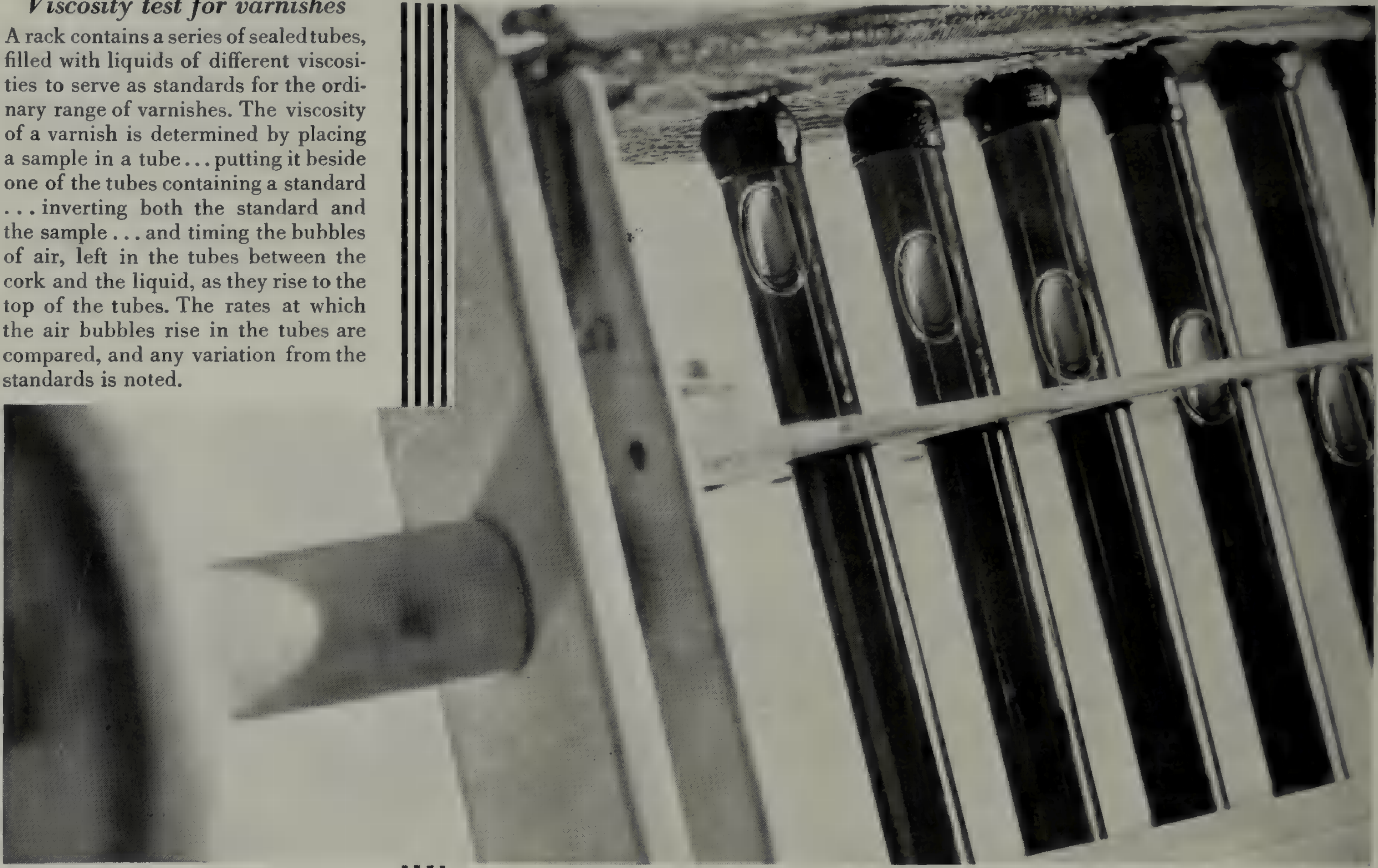
100-A

HEAVY-FOOTED BUBBLES

Viscosity test for varnishes

A rack contains a series of sealed tubes, filled with liquids of different viscosities to serve as standards for the ordinary range of varnishes. The viscosity of a varnish is determined by placing a sample in a tube . . . putting it beside one of the tubes containing a standard . . . inverting both the standard and the sample . . . and timing the bubbles of air, left in the tubes between the cork and the liquid, as they rise to the top of the tubes. The rates at which the air bubbles rise in the tubes are compared, and any variation from the standards is noted.



WHEN is a varnish too thick or too thin? When does it have the right consistency to flow together so as to eliminate brush marks . . . to give a film of just the sheen needed for the greatest beauty?

Letting it drip from the end of a painter's paddle is one way. Du Pont chemists use a more scientific method (shown above) to determine the viscosity of a varnish. This viscosity test is one of many tests made in du Pont Laboratories to give you finishing products that you can specify with full confidence in their unvarying high quality . . . in their ability to protect and still further beautify your design.

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We invite your inquiry about du Pont paints, varnishes, enamels, Duco, and other finishing products. Our Architectural Division is equipped to deal intelligently and quickly with special problems regarding application, decorative effects and technique. Write to Dept. A3, E. I. du Pont de Nemours & Co., Inc., at any of these addresses: Public Ledger Bldg. Philadelphia; 2100 Elston Ave., Chicago; Everett Station No. 49, Boston; 1 Balfour Bldg., 351 California St., San Francisco

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BECAUSE the iron is alloyed with nickel and chromium, its texture is uniform throughout the wall of the pipe, and insures its superior corrosion-resisting qualities either at the bottom of its thread or at any point on its surface. The pipe is of the same dimensions as extra heavy wrought pipe. It can be cut and threaded with standard hand or power tools. It can be welded to any length at the factory or on the job.

Arco Metal Pipe is carried in stock and distributed by jobbers of plumbing, heating and mill supplies.

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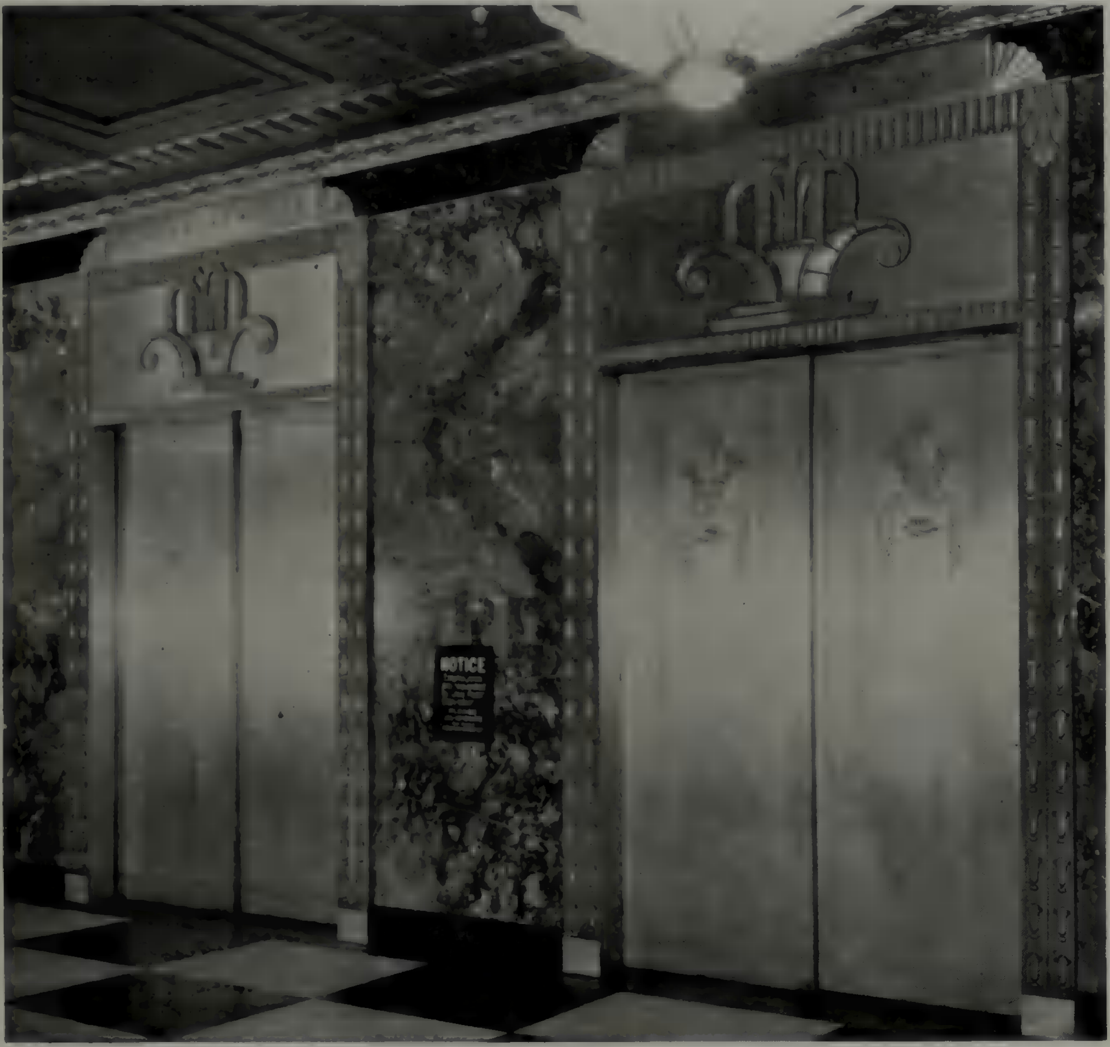
PEELLE Freight Elevator DOORS

The Modern in
BRONZE ELEVATOR ENCLOSURES
as Rendered by Art Metal

Elevator doors and cabs in the new Hudson Building in Boston are typical of Art Metal work in Architectural Bronze

ART METAL bronze was chosen by Krokyn & Browne, architects of the new Hudson Building in Boston, for these elevator enclosures and cabs.

In this building, as in so many other modern office buildings, the task of interpreting the architect's design into pleasing and distinctive interiors has been intrusted to Art Metal. For Art Metal has been producing work of this nature for more than forty years with but one ideal: careful workmanship, speeded by modern production methods.



MODERN, PROGRESSIVE in tone are the bronze elevator enclosures and cabs in the new Hudson Building in Boston. They were executed by Art Metal for the architects, Krokyn & Browne.

Experienced Service

When Art Metal is specified for an interior job, you can know that the designs will be given concrete, exact expression. The spirit of the architect's creation is faithfully captured.

Because of modern production facilities for architectural bronze and hollow metal work Art Metal can be relied on to co-operate on the most diversified contract. An experienced representative is at your service for call and consultation on any installation—large or small, partial or complete. There is no obligation entailed. Please write to The Art Metal Construction Company, Jamestown, New York.

Art Metal
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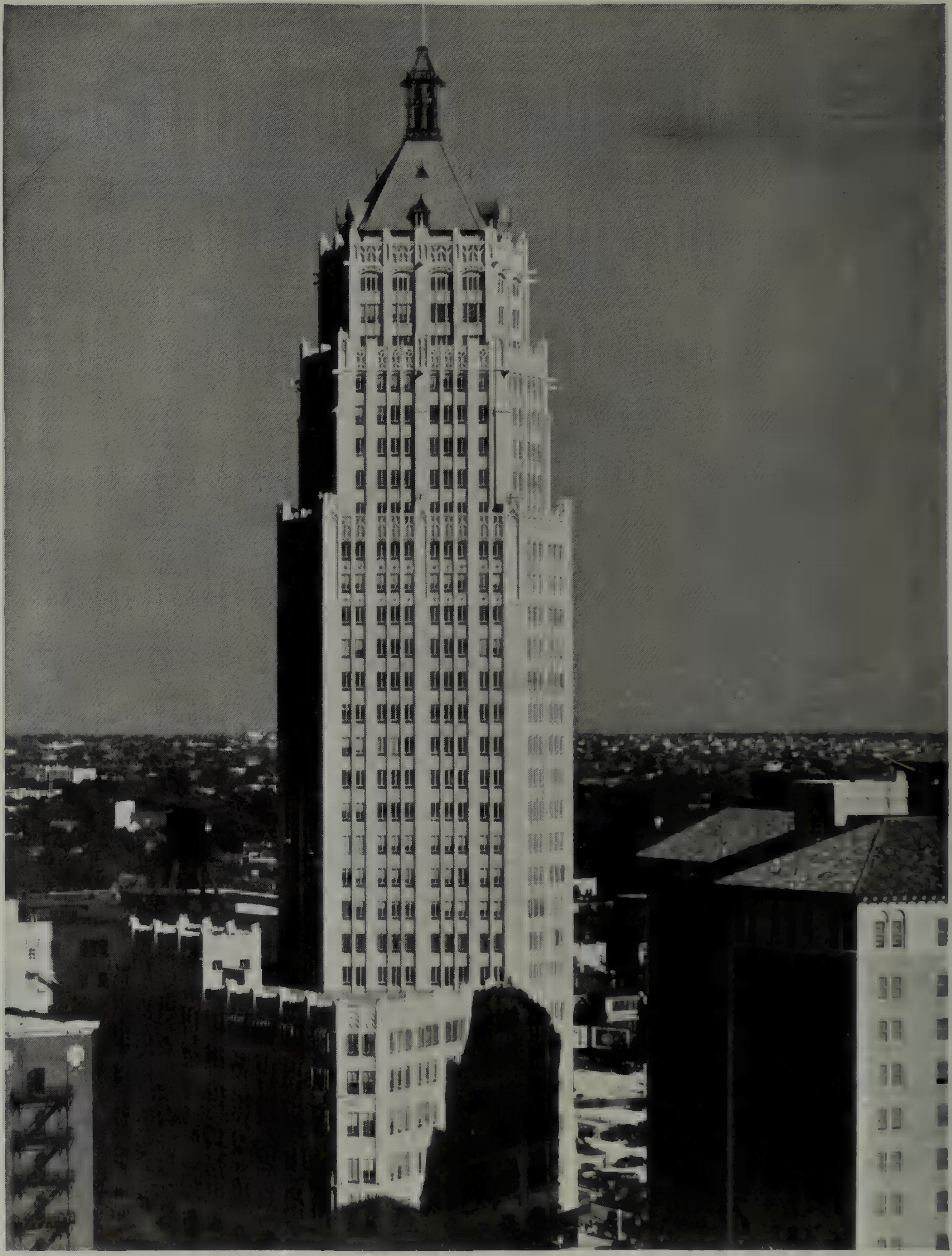
BRONZE AND STEEL INTERIOR EQUIPMENT FOR BANKS, LIBRARIES AND PUBLIC BUILDINGS...HOLLOW METAL DOORS AND TRIM



● That roofs of IMPERIAL Tiles impart marked distinction to tall buildings is well exemplified by the Smith-Young Tower, San Antonio, Texas. The lower stories are of cream white terra cotta; the upper of cream gray brick. The roof is of light green glazed interlocking shingle tiles and gives a sparkling finishing color. IMPERIAL Tiles were chosen by the architects, Atlee B. and Robert M. Ayres, because of their uniform coloring and perfect glazing.

LUDOWICI-CELADON COMPANY

Makers of IMPERIAL Roofing Tiles

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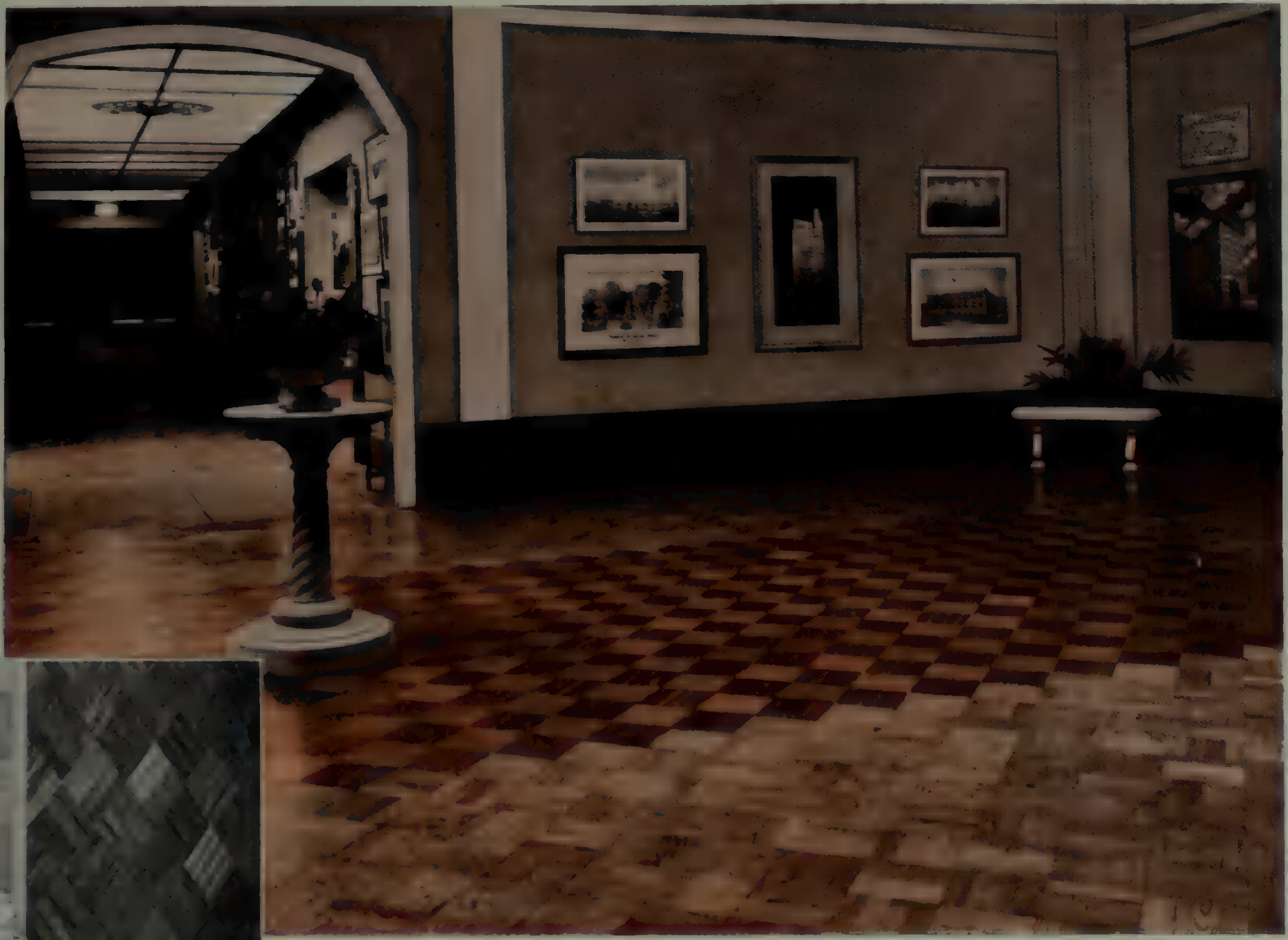

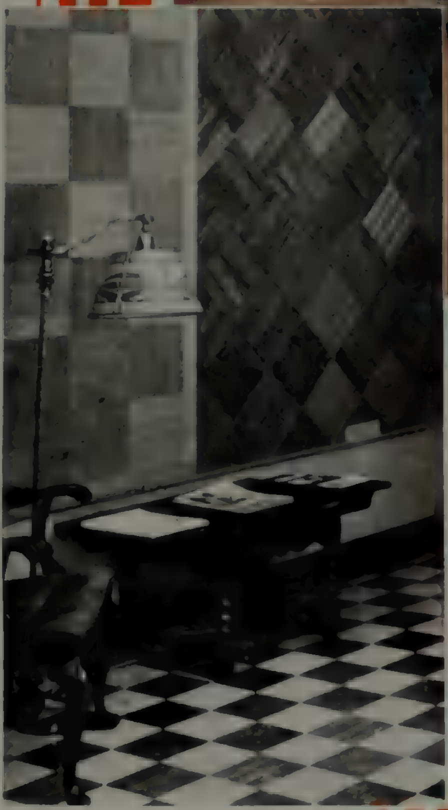

*A corner of the exhibit, showing *CELLized wood blocks for walls as well as floors. Panel at left, white and red oak, laid alternately; at right, red gum. Floor, maple and walnut blocks.*

Court of Honor in Architectural and Industrial Arts Exposition, Memphis, Tennessee.
**CELLized Oak Blocks with center area of light and dark mahogany.*

now Variety—
in *CELL*ized Wood Floor Blocks*

Interesting combinations of hardwoods now provide beautiful patterned floors, with the economy of unit block construction, laid in EVERBOND, a plastic cement, over any level sub-floor.

OAK 13-16 in.	BEECH 13-16 in.	MAPLE 13-16 in.	MAPLE* 1 1-16 in.	WALNUT 13-16 in.	PHILIPPINE MAHOGANY 13-16 in.	YELLOW PINI 13-16 in.	RED GUM 13-16 in.
			in the following sizes of squares:				for walls and ceilings
6¾ in.	6¾ in.	6¾ in.	6¾ in.	6¾ in.	6¾ in.		6¾ in.
7½ in.	7½ in.	8 in.					
9 in.	9 in.	9 in.	9 in.	9 in.	9 in.		9 in.
		9¾ in.				9¾ in.	
10½ in.		10 in.					
11¼ in.	11¼ in.	11¼ in.		11¼ in.	11¼ in.		11¼ in.
12 in.	12 in.	12 in.				13 in.	
		13 in.					

See Sweet's 24th Edition

*For industrial floors, (extra heavy service) maple blocks are also fabricated 1 5-16 in. thick; several sizes.

[NEW *Rectangular Blocks for basket weave, herringbone and other patterns are available in all woods, in sizes 6¾ in. x 13½ in. and 6 in. x 12 in.*]

Sold through lumber dealers everywhere; manufactured by

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***CELLized Oak Flooring Inc.**
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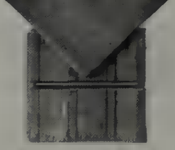

Front and back of 6¾ in. block

*CELLized Wood Floor Blocks are guaranteed. Laid only by Licensed Flooring Contractors. Names on request.

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UNDER PATENTS OWNED BY
CELLized Oak Flooring INC.
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FLOORING CONTRACTOR

Condensed Specification

FLOORING—Shall be.............. inch *CELLized....................Floor Blocks, laid in accordance with *CELLized Specifications over ....sub-floor, by a Licensed Floor Contractor of *CELLized Oak Flooring Inc.

Delivery of the *CELLized Oak Flooring Inc. Five Year Guarantee by the Licensed Floor Contractor will be required upon completion of the job.

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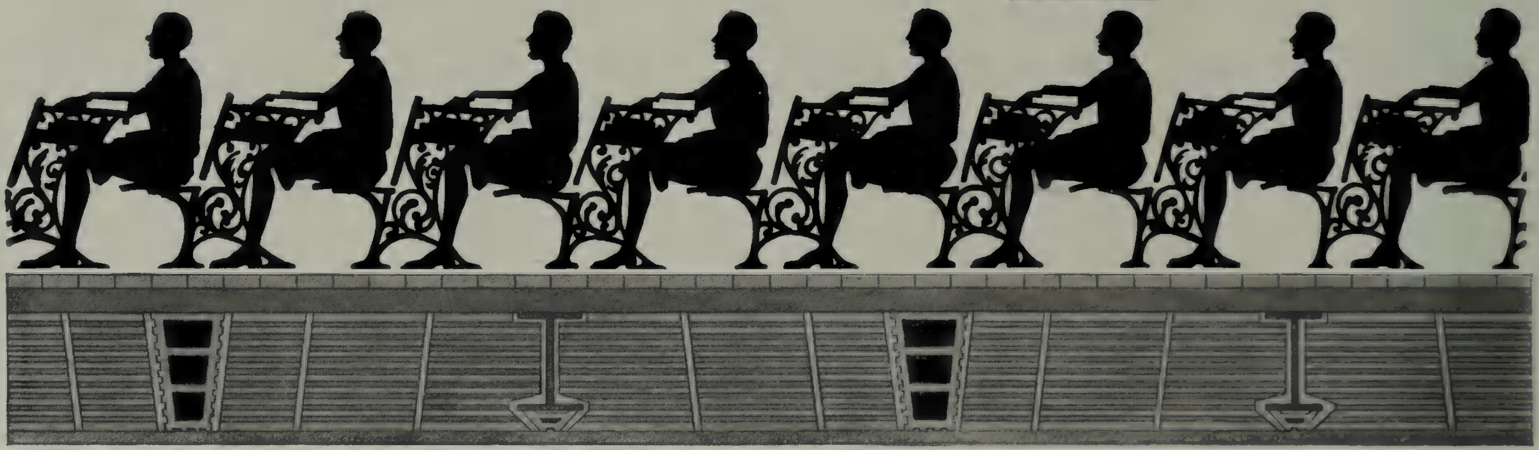
The Most Economical Form of Strictly Fire-Proof Floor



SPEED in construction, independent of temperature, is a highly valuable feature of Natco Flat Arch Floor. Centering is hung; no nails are used. Centers need remain in place but one-tenth to one-fourth the time required under other forms of construction. Floors beneath are accessible for work by other trades. The all-tile ceiling requires only two coats of plaster. Holes may be left, or cut at any time to accommodate pipe work and later easily patched.

Natco Flat-Arch Floor offers outstanding advantages, in both floor and roof work. Engineering and technical data will be gladly furnished on request

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Berrycraft House Paint is a revolutionary new exterior finish made of pure lead, zinc and linseed oil mixed with the proper amount of Lionoil—world-famous wood preservative and rust preventive. For years master painters have used Lionoil in ordinary paints to make them look better, wear longer and dry faster. Now for the first time this secret-processed ingredient is available in ready-mixed paint.

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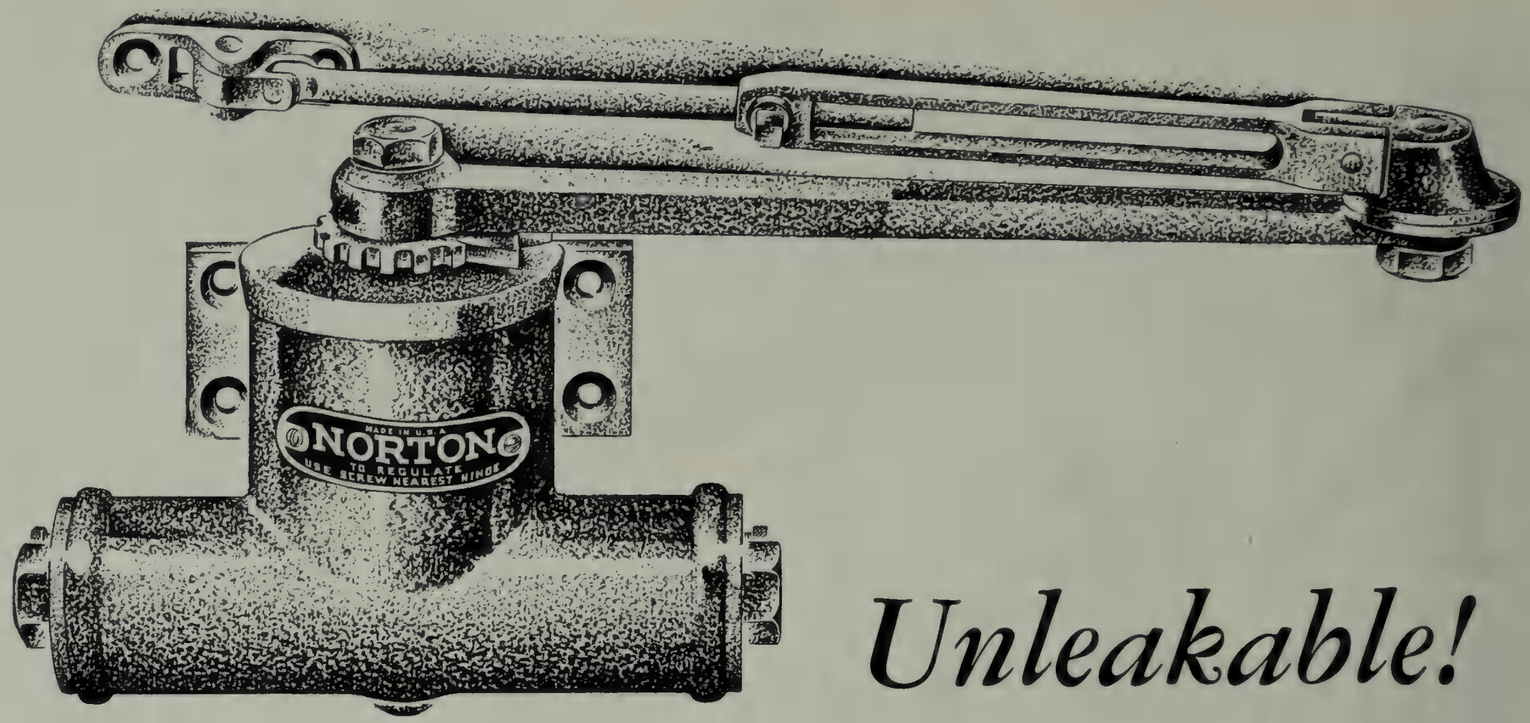
Specify Berrycraft House Paint with the assurance that it will give added beauty and extra years of wear. Write the Architectural Department for details, samples or color card—no obligation, of course.

BERRY BROTHERS
Varnishes Enamels Lacquers
Detroit, Michigan *Walkerville, Ont.*

Liquid Granite Floor Varnish, dull, gloss or quick-drying, Lionoil Floor Enamel, Berrycraft Quick-Drying Enamel, Brushing Lacquer, Luxeberry Enamel, Luxeberry Wood Finish and other wear-resisting architectural finishes are manufactured by Berry Brothers.



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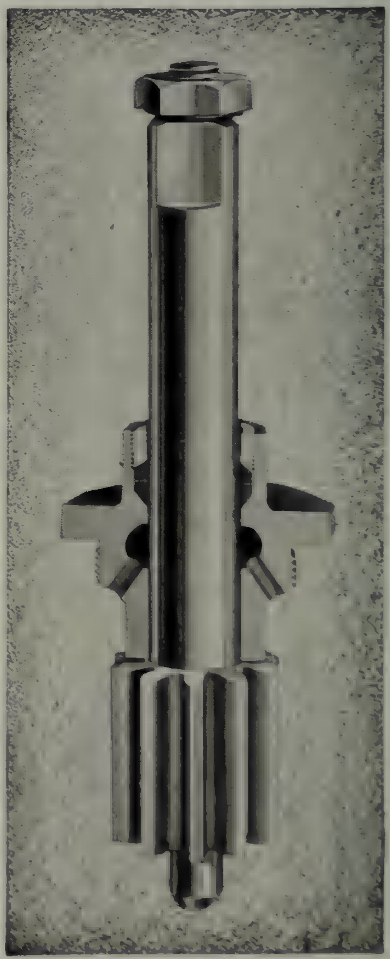
NORTON PERFECTS NEW TYPE PACKING NUT WHICH ELIMINATES ANY POSSIBILITY OF LEAKAGE . . . . . .

NORTON has perfected, in its own research laboratories, an ingeniously recessed packing nut which absolutely prevents leakage and which greatly reduces friction and wear. Too, it permits the use of a specially developed mineral oil, which is preferable to the alcohol and glycerine mixture commonly used in door closers. An ideal lubricant, it insures continuously efficient operation, does not evaporate and does retain its life and body. ▲ ▲ Other improvements in the 1930 NORTON include a 15% increase in bearing space (resulting in a 25% increase in life) and a sturdier, more resilient spring. ▲ ▲ Now, more than ever before, the NORTON stands supreme. Our iron-clad guarantee insures the perfect operation of every door closer for two years when our recommendations are followed. And NORTONS that have operated millions of cycles are still in service.

See Sweet's pages B2408-2412

NORTON DOOR CLOSER COMPANY
Division of The Yale & Towne Mfg. Co.
2900 NORTH WESTERN AVENUE, CHICAGO, ILLINOIS



NORTON DOOR CLOSERS

1880 GOLDEN ANNIVERSARY YEAR 1930

DAVEY TREE SURGERY

Reproduction from a painting made on the campus of the Sweet Briar College, Sweet Briar, Virginia, by Frank Swift Chase

© The D. T. E. Co., Inc., 1930

Half a century since John Davey originated the science of Tree Surgery

FIFTY YEARS ago John Davey began experimenting with his new theory that trees could be saved by curative processes. Were they not living things? Were they not subject to disease, injury and other ills? And yet to most men they were just trees, destined to die whenever circumstances took them.

Countless millions of people had seen trees die—if they saw trees at all—without ever a thought that they could be saved. John Davey saw sick and injured trees with understanding and sympathy. He conceived the idea that a system of methods and treatment could be devised that would save innumerable trees that were being lost unnecessarily. What gave him the idea no one knows. John Davey passed away suddenly nearly seven years ago without disclosing the source of his inspiration. He did a comparatively rare thing; he gave the world a new idea.

JOHN DAVEY
1846-1923
Father of Tree Surgery
Reg. U. S. Pat. Office

As with most new ideas, John Davey endured the long and bitter struggle against ridicule and cynicism and inertia and established habits of thinking. He struggled forward with remarkable determination and with sublime courage. He lived long enough to see his new science a proven success both from a practical and a commercial standpoint.

Like most geniuses John Davey did not care much for money. He had a profound love of nature and was not only thoroughly trained in horticulture, but was an eager student of the related sciences. He not only gave to the world a new idea, but he gave a fine philosophy also. To him the whole development became a great ideal of usefulness and constructive service. His spirit impressed itself indelibly and is a living force in the organization that he founded and inspired.

THE DAVEY TREE EXPERT CO., Inc.
421 City Bank Bldg., Kent, Ohio

Branch offices in all important cities between Boston and Kansas City, between Canada and the Gulf.

MARTIN L. DAVEY, *President and General Manager*

Tune In Davey Tree Golden Anniversary Radio Hour
Every Sunday afternoon, 5 to 6 Eastern time; 4 to 5 Central time; over the Red Network National Broadcasting Company. Featuring the old-time songs that everyone knows and loves. Listen to Chandler Goldthwaite on the Skinner Residence Organ.

IMITATION—*The sincerest tribute*

SLATE from the Bryn Mawr quarries carries color to the rooftree—soft, harmonious hues, unfading or semi-weathering, solid colors or blends, plain or patterned, according to specification. And Bryn Mawr is true Vermont slate, in all tints, colors, sizes, shapes and thicknesses, produced by specialists experienced in cooperating with architects in its most successful use.

There is no successful imitation of a Bryn Mawr slate roof, walk or wainscot.

OWEN W. OWENS' SONS, Inc.
Producers of Vermont Slates since 1884
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BRYN MAWR
SLATE

See Sweet's Architectural Catalog, 1930, Vol. B, page 1754.

BRYN MAWR SLATE

"Heirloom quality" fittingly describes the Bryn Mawr roof specification of Architect David S. Douglas in this house at Hartford, Conn.

OUR CONTRIBUTION TO THE ART OF HEATING AND VENTILATION

The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their satisfactory performance. + + + +

THE HERMAN NELSON CORPORATION MOLINE ILLINOIS

Building the coming men and women of America

The American school boys and girls of today will guide the destiny of their country tomorrow. How well they will play their part depends largely upon the tools with which we fit them, the environment in which we require them to grow and learn. Great, therefore, are the responsibility and the privilege of the architect who is called upon to build—a school!

© 1930, T. H. N. CORP.

A

The photograph at the left was taken in 1924. Happy and healthy children have been coming from this room ever since, and will continue to come for many years. The room is equipped with Univent Ventilation.

The Univent draws air directly from out-of-doors—cleans it—warms it to a comfortable temperature—and silently delivers it to every pupil in the room, with agreeable air motion but without drafts. While other systems may simulate the Univent, it is common knowledge in the profession that Univent results cannot be duplicated.

In recommending genuine Univent Ventilation for the school building, the architect is holding high the confidence which his community has vested in him. He is carrying out his responsibility in accord with the highest ideals of his profession.

Univent Ventilation is applicable to offices, hospitals and all buildings requiring thorough ventilation. Write for architects' and engineers' edition of "Univent Ventilation."

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*Makers of the Univent, for the ventilation of schools, offices, churches and all buildings having an acute ventilating problem—the Herman Nelson Invisible Radiator, for residences, apartments, hotels, offices and commercial structures—the Herman Nelson Hiject Heater, for economical distribution of heat in factories, mills, garages, warehouses and similar buildings.

Exquisite carving, rich staining, delicate decoration—all are readily achieved with Port Orford Cedar. As evidenced in the Jacques Vinmont home, Los Angeles. Roland Coate, architect

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On *these* 7 points cream-white PORT ORFORD CEDAR bids for all interior finish work

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Your local lumber dealer has Port Orford Cedar or can obtain all standard grades and sizes promptly. Mail the coupon to our sales agents for complete information.

PORT ORFORD CEDAR PRODUCTS COMPANY, Marshfield, Oregon.

The Aristocrat of Woods

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DANT & RUSSELL, INC., Sales Agents,
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Please send me your illustrated monograph "Port Orford Cedar—Its Properties and Uses"—also "Fine Interiors with Port Orford Cedar."

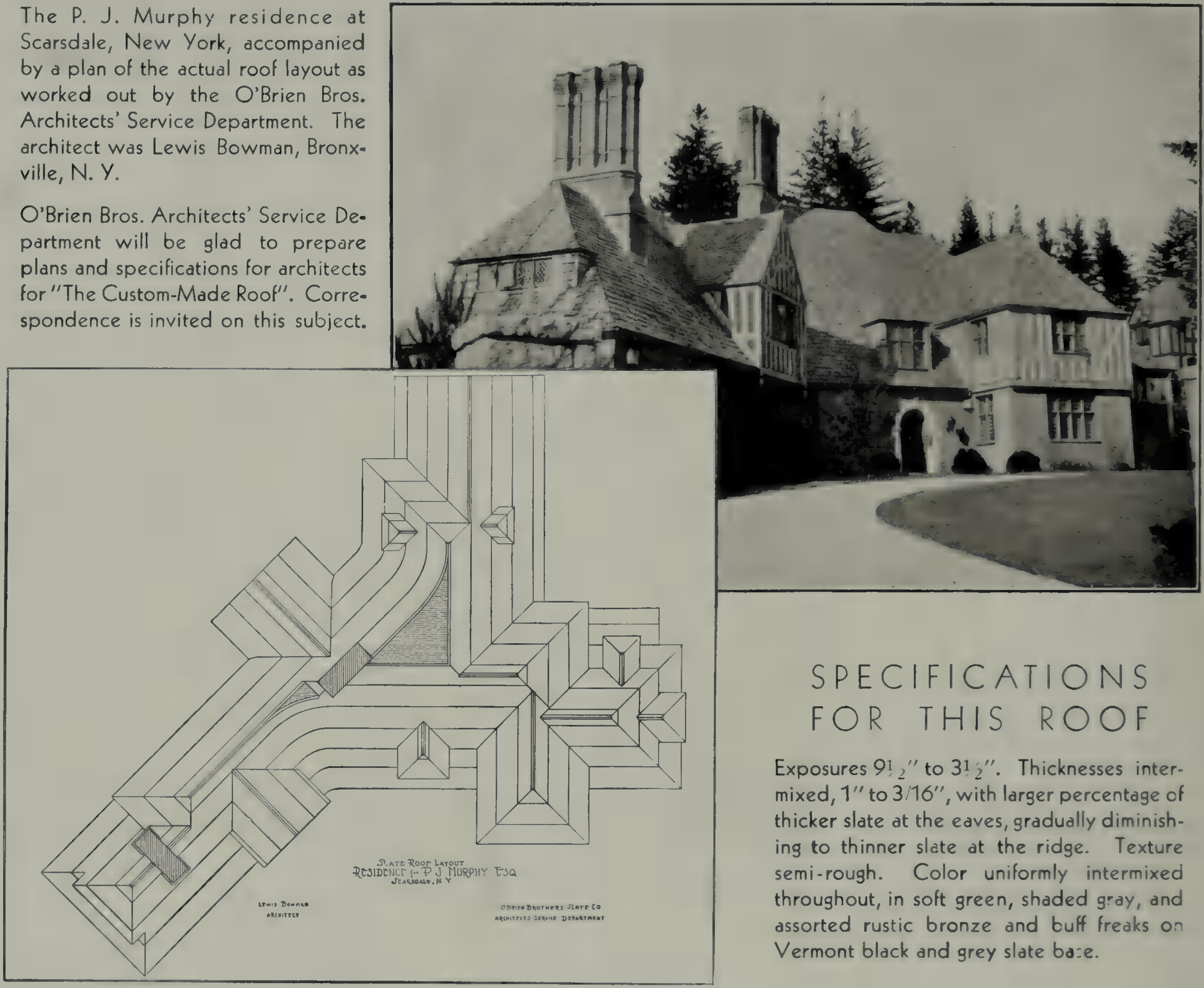
Name..

Address..

O'BRIEN BROS. offer the ARCHITECT
"The Custom-Made Roof"

The P. J. Murphy residence at Scarsdale, New York, accompanied by a plan of the actual roof layout as worked out by the O'Brien Bros. Architects' Service Department. The architect was Lewis Bowman, Bronxville, N. Y.

O'Brien Bros. Architects' Service Department will be glad to prepare plans and specifications for architects for "The Custom-Made Roof". Correspondence is invited on this subject.


Slate Roof Layout
Residence for P J Murphy Esq
Scarsdale, N Y
Lewis Bowman
Architect
O'Brien Brothers Slate Co
Architects Service Department

SPECIFICATIONS FOR THIS ROOF

Exposures 9½" to 3½". Thicknesses intermixed, 1" to 3/16", with larger percentage of thicker slate at the eaves, gradually diminishing to thinner slate at the ridge. Texture semi-rough. Color uniformly intermixed throughout, in soft green, shaded gray, and assorted rustic bronze and buff freaks on Vermont black and grey slate base.

O'BRIEN BROS. TAKE PRIDE in their thirty years' experience in slate craftsmanship, handling Nature's product, "SLATE STONE HAND WROUGHT," from old and tried quarries. Experts who know roof design are at your command, to execute your conceptions and add their specialized skill towards harmonization of color, tint and texture with the spirit and character of the individual project. Use "slate, hand wrought" for finest roof results, for longest life, for resistance to the elements that cause inferior products to disintegrate — and let the O'Brien Bros. Architects' Service Department co-operate in the layout.

Represented in Sweet's Architectural Catalogues Volume B, Page 1737

O'BRIEN BROTHERS SLATE COMPANY, Inc.

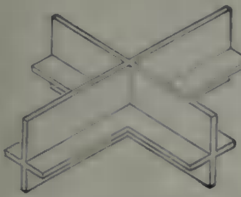
Established 1901

Architect's Service Department, Architect's Building, 101 Park Avenue, New York

Telephone ASHland 3651

Granville, N. Y.

Quarries: Pawlet, Vt.

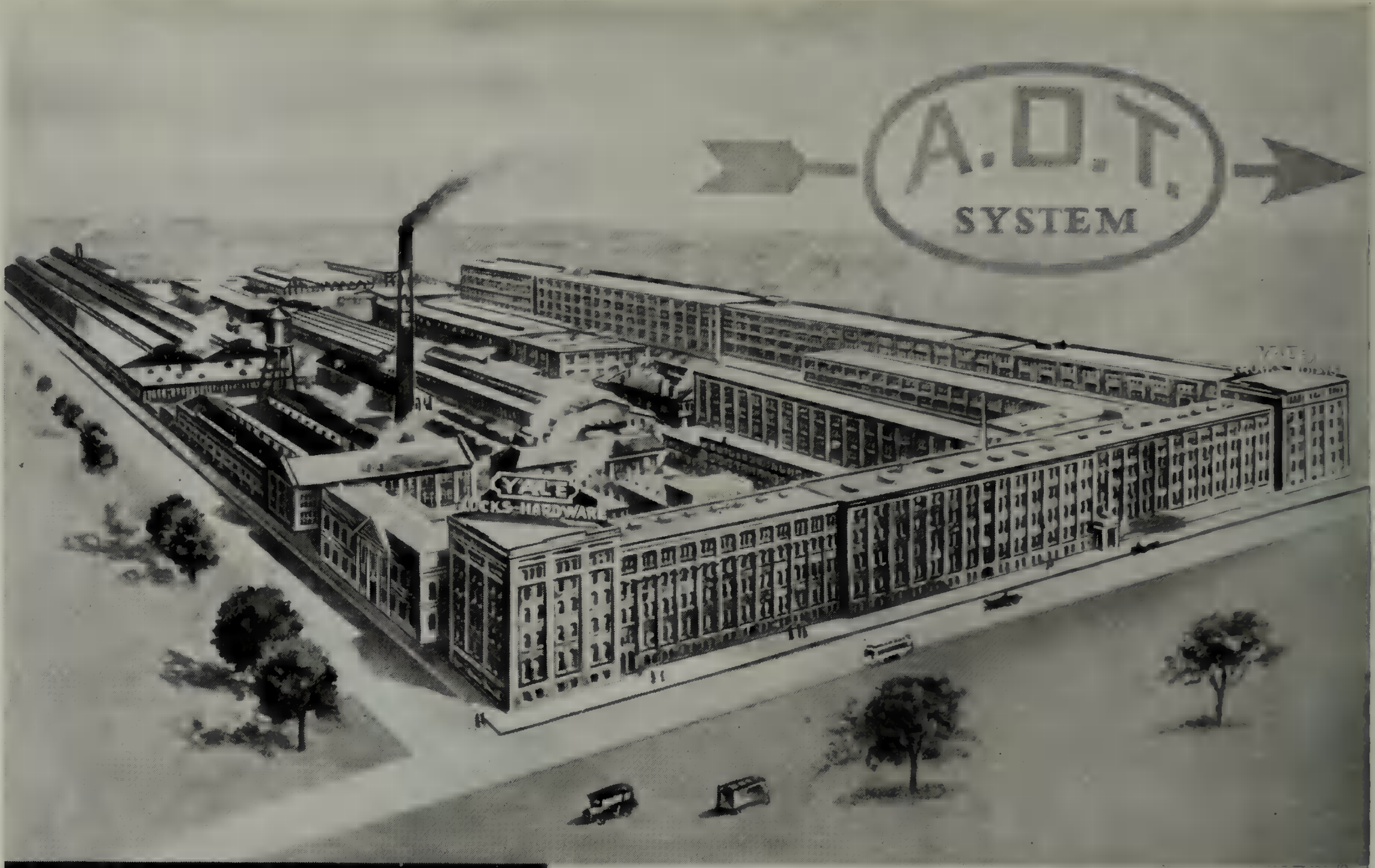

Uncut Short Muntins for Rigidity

Carloadings for the East, North, South and West show the remarkable and overnight acceptance of the application of genuine wrought iron to window sash by MESKER † Its volume and tonnage bespeak immediate endorsement by major specifying power † The one way to avoid progressive corrosion † The one way to specify sash that is eternally sound † Write for Folder AR †

WROUGHT IRON SASH

Mesker

MESKER BROS. IRON CO., ST. LOUIS, MO.
Wrought Iron Window Sash Originators



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Protection for Industrial Buildings

The Stamford Works of Yale & Towne Manufacturing Co. include 63 buildings with a total floor area of 1,011,000 square feet.

Landmarks of Modern Protection

YALE & TOWNE, manufacturers of nationally known hardware, the world-famous Yale locks, and materials handling equipment, appreciate the advantages of complete, modern plant protection. Their Stamford Works, shown above, are completely protected by A. D. T. Central Station Watchman's Compulsory Tour and Fire Alarm Service.

Many prominent industrial plants throughout the country are users of A. D. T. Central Station Services, which provide the most efficient and economical form of protection available.

99.97% immunity from fire is the record of A. D. T.-protected premises — a record any plant would be proud of.

A. D. T. Central Station Services are available in all principal cities. Systems for owner operation may be provided when desired. Ask for new architects' catalog.

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TIGER FOOTPRINTS MAKE FINE BUILDINGS FINER

Interior
RALPH W. RYMER
RESIDENCE
Scranton, Pa.

Architects
Davis & Lewis
Scranton

Plastering Contractors
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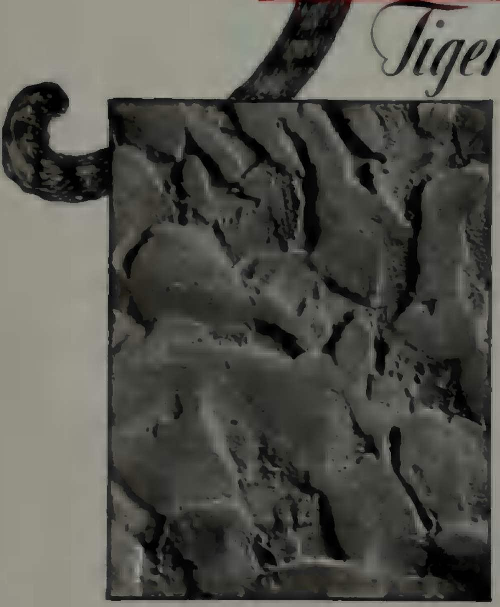
Tiger" FOOTPRINTS *" are instantly recognized*



The distinguishing imprint of the Jungle Master flashes to the mind of man a message that demands vital consideration. Our symbolized Tiger also shares this characteristic, for as his passing is recorded on the trail of American Architecture, it is instantly recognized and accorded respect as a mark of added value.

Tiger "Footprints" (textures and finishes) create an atmosphere of unchallenged distinction, lending to the entire structure an individuality and charm. These artistic textures and finishes for both walls and ceilings are readily obtained with Tiger Finishing Lime, possessing as it does, remarkable plasticity and many other desirable working qualities.

The KELLEY ISLAND LIME & TRANSPORT COMPANY
"World's Largest Producer of Lime"
LEADER BUILDING : : : : CLEVELAND, OHIO

MODIFIED SPANISH

Another Attractive Tiger "Footprint"

An ideal and very popular room texture, permitting a wide range of two and three tone color effects. Started with a light buff base, it can be developed by super-imposing green gold, rose or blue. The texture is trowel spotted, then ironed out.

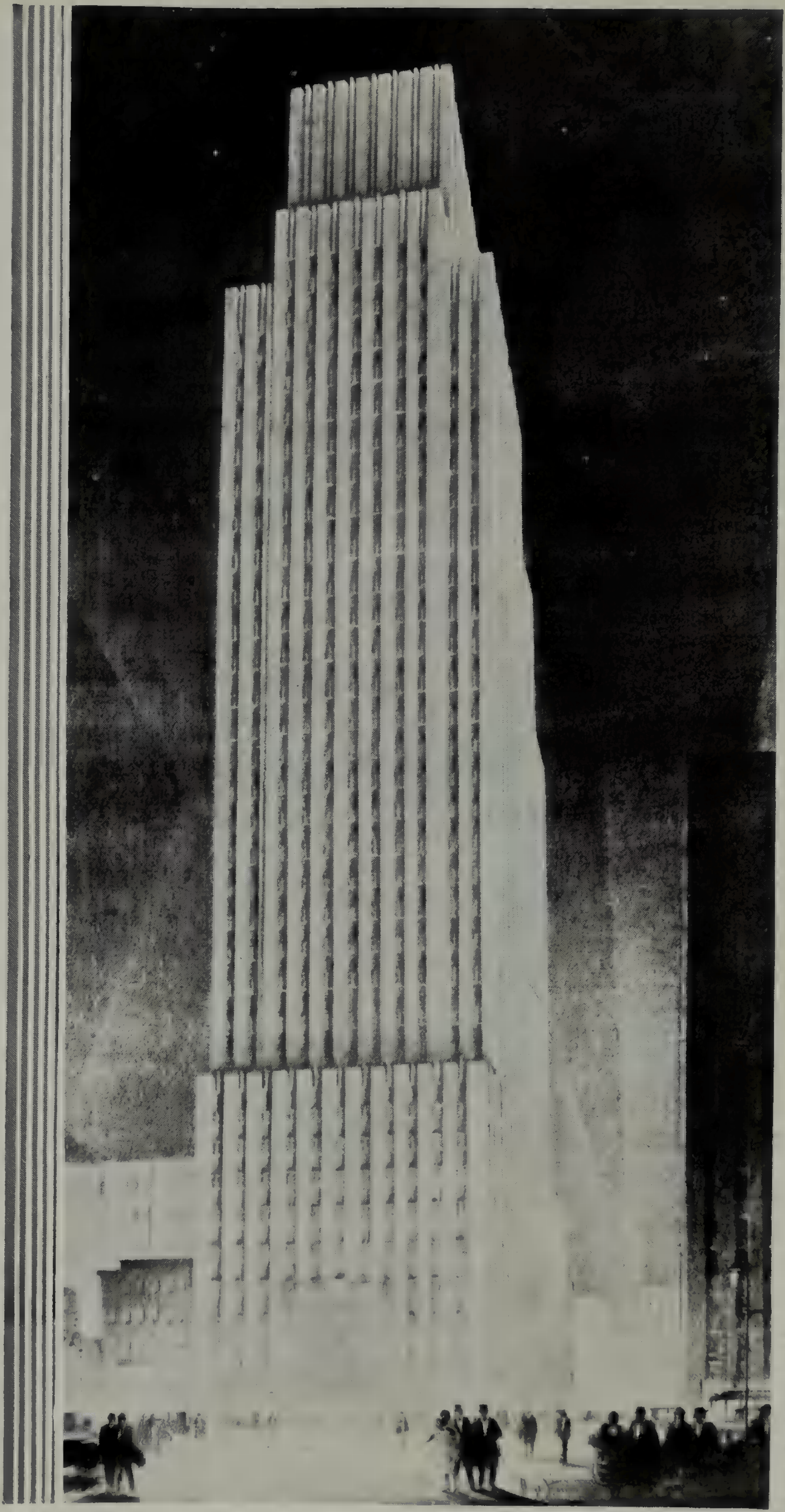
The Famous

TIGER

FINISH

And—Tiger Mason's, Tiger Agricultural, Tiger Chemical, Tiger All-Purpose Hydrate in 10-lb. packages, and High Calcium and Magnesium Lump Limes. Also Quickslake (ground quicklime) in paper-lined jute sacks.

"SPREADS LIKE WARM BUTTER"



The New York News Building (E. 42nd St.)
Raymond Hood, John Mead Howell, Architects
(General Building Contrs.—Hegeman Harris Company, New York)

HALSEY TAYLOR
DRINKING FOUNTAINS

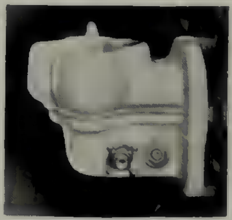
The Specification For Sanitation

●

IN this new building of
THE NEWS
NEW YORK'S PICTURE NEWSPAPER

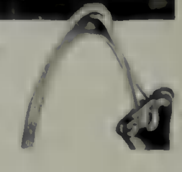
●

New York, with its scores of distinguished office structures, has none that surpass this magnificent new building, in its appointments and facilities, in the efficiency of its office space and the convenience of its location. It is an architectural masterpiece, and we are proud to say that Halsey Taylor fountains were installed throughout . . . The Halsey W. Taylor Co., Warren, O.



No. 608

No. 631



Drinking Stream Always Practical

Eighteen No. 631 fountains (shown at right) and seventeen No. 608 (shown above) were used to assure sanitary drinking convenience. All with two-stream projector and automatic stream control, of course, thus assuring a drinking stream of uniform height regardless of pressure, and of utmost sanitation, with no necessity for lips to touch!

In making these doors for the Otis Elevator Company, Thorp followed the designs of the Byllesby Engineering Company, builders of Minneapolis' new Northern States Power office building, in which they are installed

●

STANDARDIZED, *Yet Permitting Infinite* VARIETY of DESIGN

"Standardized" applied to Thorp Doors, means simply that certain methods of construction long found to be superior are always used. Thorp Doors are electric welded, therefore permanently rigid; the guide is integral with the bottom rail and runs the full width of this member, thus completely preventing light strikes. Fibre tips on the guides eliminate metal-to-metal contact, making for silent operation.

Yet these features leave the architect's pencil free to create designs that he can count on Thorp to reproduce with complete fidelity.

THORP FIRE PROOF DOOR COMPANY
MINNEAPOLIS MINNESOTA

Specify

THORP DOORS

POSITIVE

Certainty, expressed in terms of Brass and Steel, assures precise action on Single Swing Elevator Doors

* * *

While there is probably no door closing device on the market that fails to close its door, there are cases where *absolute certainty* of action must be assured. Single swing flush hatchway elevator doors present such a case.

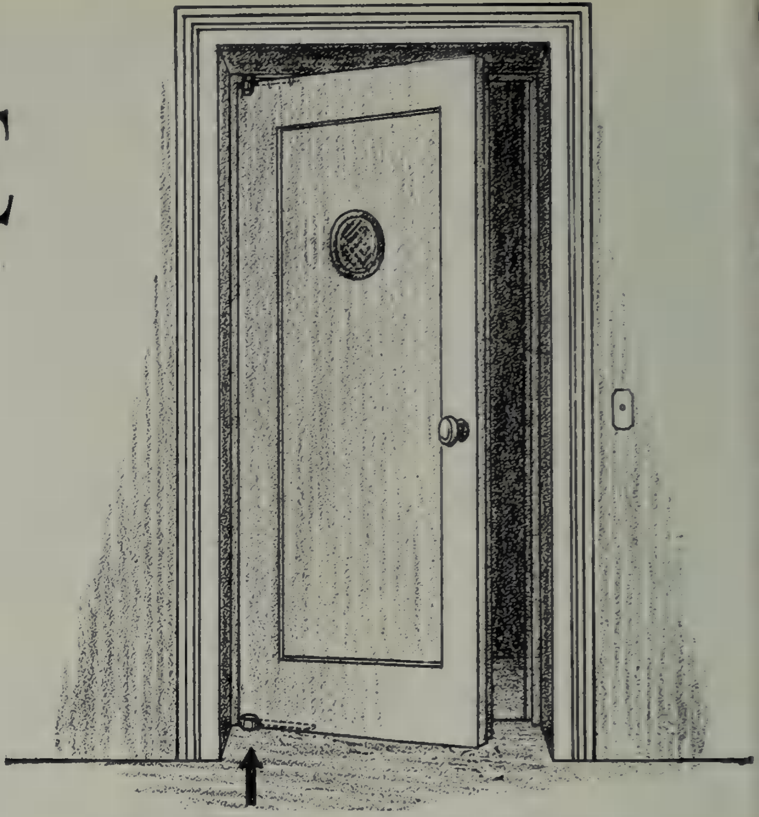
It is thus a sort of certificate of merit that the largest elevator companies and leading architects specify "Rixson No. 20." They value its reliability of action in the tenth as well as the first year of its life. Its sureness contributes to the success of the elevator installation,— for in this application a contact must be made by the closing door before the elevator can operate.

Such sure but gentle strength is no lucky accident but a result of the skillful patented construction illustrated in detail opposite.

THE OSCAR C. RIXSON COMPANY
4450 CARROLL AVENUE, CHICAGO, ILL.
New York Office: 101 Park Ave., N. Y. C.

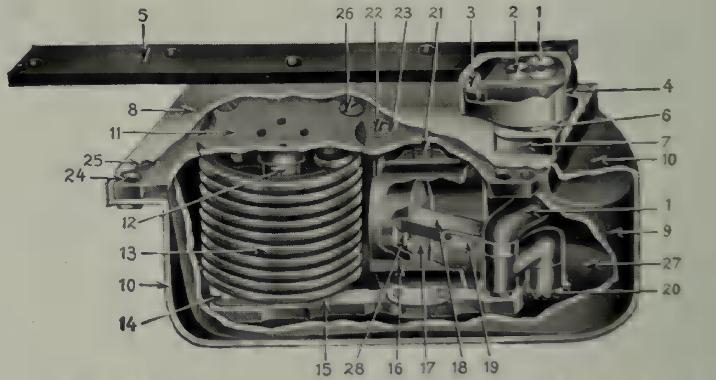
SEE OUR Catalogue in SWEETS

Or write us for full information



Rixson Automatic Closer and Floor Check No. 20

RIXSON
Automatic Closer and Floor Check
– No. 20 –



1. Spindle—2. Key pin—3. Locking bolt—4. Hub cap—5. Arm—6 Spindle washers—7. Spindle shoulder collar—8. Floor plate—9. Case—10. Cement floor box—11. Spring adjuster—12. Spring post—13. Spring—14. Lower spring carrier—15. Spring link (3 piece unit)—16 Cylinder—17. Plunger—18. Plunger link—19. Plunger link strap—20. Ball bearings—21. Cylinder locking screw (2) —22. Valve screw—23. Valve screw bushing—24. Case screws (4¼"20)—25. Floor plate screws (4–10/24 pol. head)— 26 Spring adjuster screws—27. Lower spindle bearing nut—28. Plunger connecting pin.

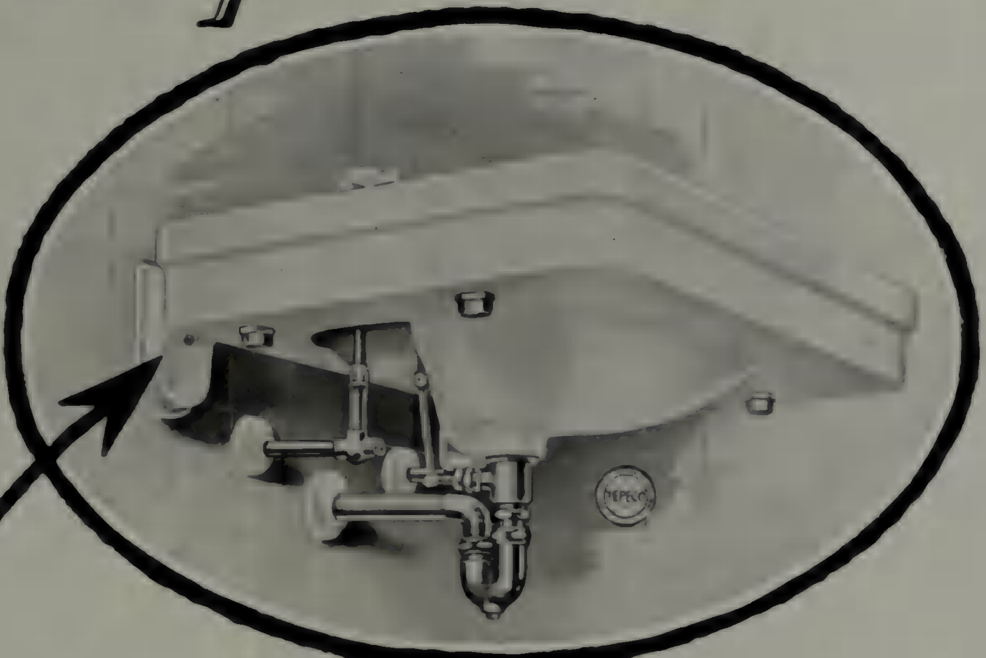
Refer to Appliance Bulletin No. 63

RIXSON

PHILADELPHIA ATLANTA NEW ORLEANS LOS ANGELES WINNIPEG

Improved Mechanisms in Builders' Hardware

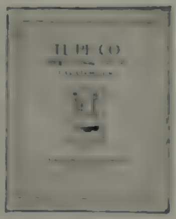
A Te-pe-co Product



A Marked Improvement in
CONCEALED BRACKET LAVATORIES

UNLESS the service is of an extremely severe nature the new Te-pe-co Concealed Bracket Lavatory on Wall Carrier will prove a welcome innovation to Architects for their plans in residences, hotels, apartments and buildings of a semi-public nature.

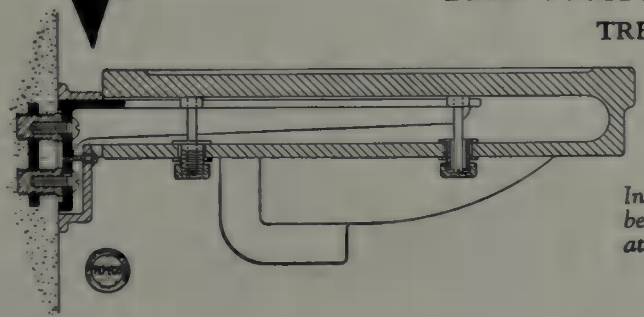
With a Te-pe-co Vitreous China Lavatory, in sizes from 24x20 to 33x24 can now be supplied this bracket, attached as per diagram below. Its adjustability permits leveling of lavatory. It eliminates the clumsiness of prior types of brackets. The result is an installation of pleasing appearance, simplicity and approved sanitation.



Our Lavatory Booklet, describing this fixture, if not already in your file will be gladly mailed.

THE TRENTON POTTERIES COMPANY
TRENTON, NEW JERSEY, U. S. A.

National Showroom—New York City
101 Park Ave., Entrance on 41st St.
Branch Offices—Boston, Philadelphia, San Francisco
Export Office: 115 Broad Street, New York City



In addition to leveling feature it will be noted that lavatory may be set at any desired height.

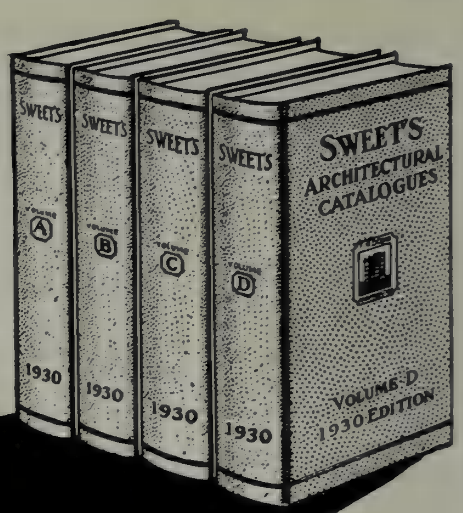
OUR GUARANTEE

We make but one grade of ware—the best that can be produced—and sell it at reasonable prices. We sell [illegible] seconds or culls.

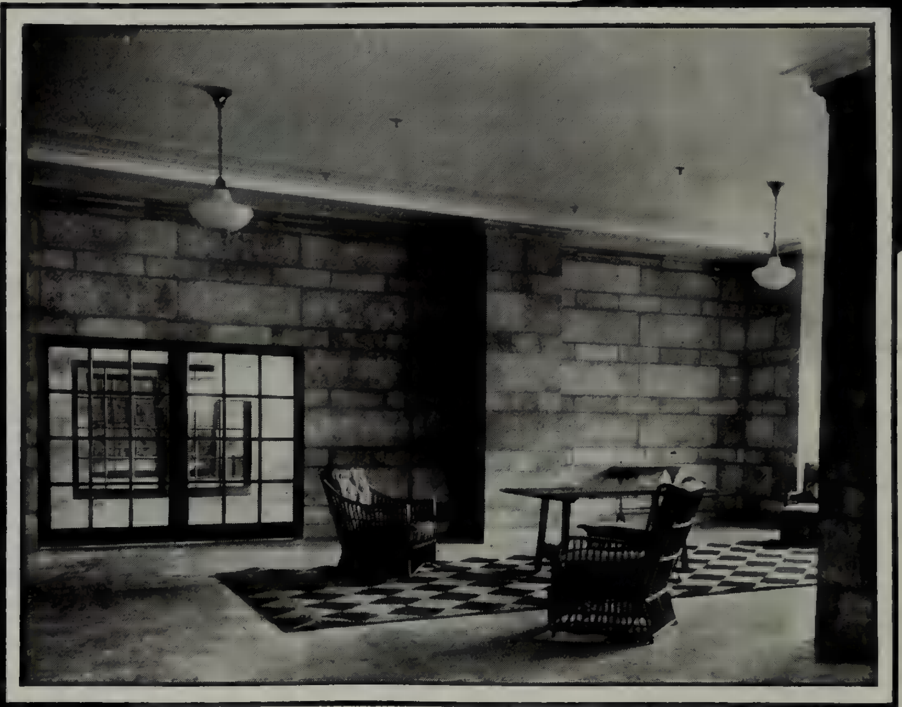
Our ware is guaranteed to be equal in quality and durability to any sanitary [illegible] made in the world.

The Te-pe-co trade mark is found on all goods manufactured by us and is your guarantee that you have received that for which you have paid.

How to specify a distinguished interior —or exterior!



Sweet's Volume B, pages 2286-7-8-9 for specifications and color chart.



Hawaiian Pineapple Co.
Honolulu, T. H.
Dickey & Wood, Architects
Flooring and walls
by Zenitherm

EVERY architect can turn to Sweet's, Volume B, pages 2286-7-8-9 and read specifications for Zenitherm walls and floors. The color chart gives you an idea of the wonderful effects that can be obtained. Sweet's also gives complete information on how Zenitherm can be installed inside and outside over wood, concrete, or brick.

National consumer advertising tells those interested to inquire of their architects, and that they have complete information on Zenitherm in Sweet's.

ZENITHERM

(For Walls and Floors)

ZENITHERM COMPANY, Inc., KEARNY, NEW JERSEY
110 EAST 42nd STREET, NEW YORK, N. Y.
PHILADELPHIA CHICAGO BOSTON SAN FRANCISCO DETROIT

You can use the wood with which the early Colonists worked!

THE FORESTS from which Colonial craftsmen drew their supplies are not so completely stocked with virgin timber as in former years. But genuine White Pine still grows in great quantities in the Inland Empire of the Great Northwest and is sold in all good lumber yards as "Idaho (genuine) White Pine."

The wood has all the qualities that commended it to earlier craftsmen. Its soft texture, and straight, even grain make it exceedingly easy to work. It takes paint without the grain raising. Every board retains its shape; the joints stay right. And even after years of wear and exposure to weather, Idaho White Pine remains virtually unchanged.

There was never a satisfactory substitute for White Pine in Colonial days and there is none today. It is nature's finest building lumber. For all interior trim, including wainscotings, paneling, carved ornament; for all exterior work where a naturally durable, beautiful wood is required, Idaho White Pine is the ideal building lumber. For your protection, Idaho White Pine is now trade-marked. Western Pine Manufacturers Association, Portland, Oregon.

The doorway of a charming home at Farmington, Conn. Built of White Pine in 1690, and standing today.

First Congregational Church on the Green, Canterbury, Conn. Rebuilt of White Pine in 1784 on the site of former churches, and standing today.

IWP

This trade-mark is imprinted on Idaho White Pine at the mills, and is a definite means of identification—a protection for home owner, builder, architect and lumber dealer.

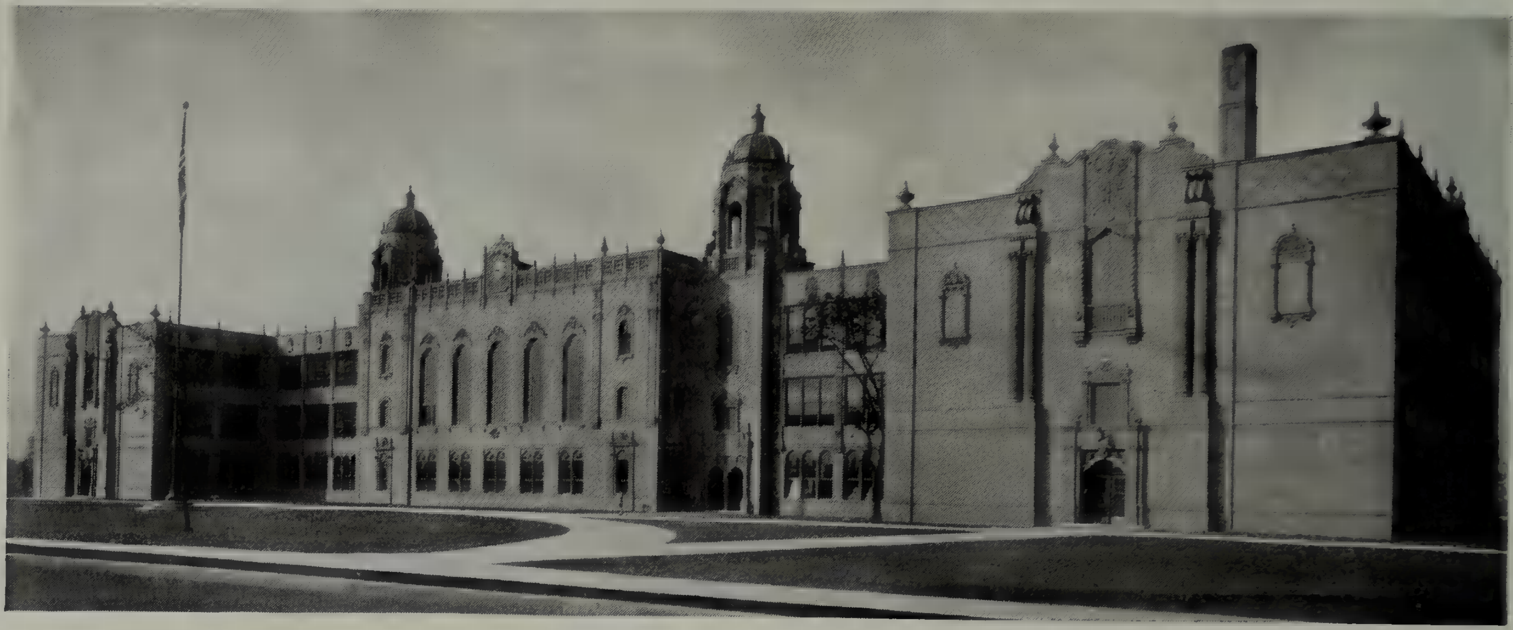
Idaho

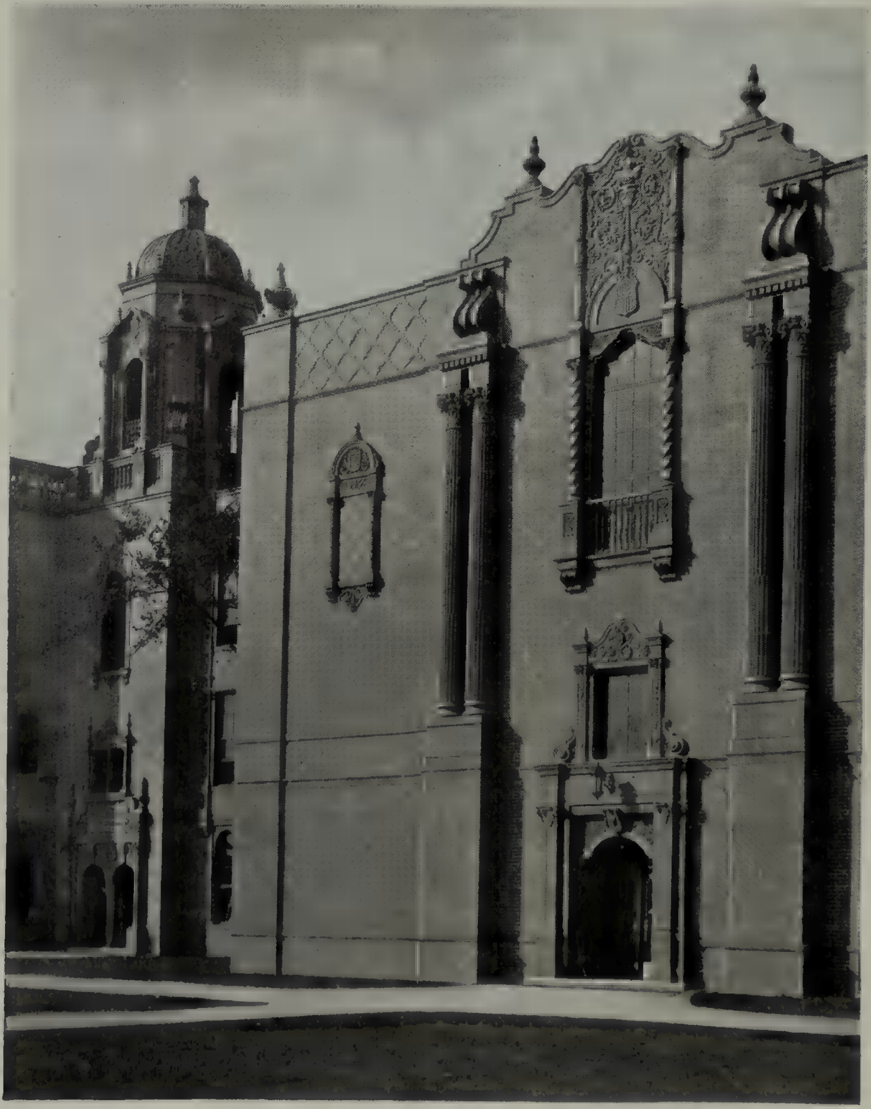
GENUINE

White Pine

THE PINE WITHOUT A PEER

FEDERAL SEABOARD TERRA COTTA





Suggesting the decorative possibilities of Federal Seaboard Terra Cotta in conjunction with face brick . . . Cooley High School, Detroit, Donaldson & Meier, Architects. Rosewarne, McNabb & Worswick, Builders.

FEDERAL SEABOARD TERRA COTTA CORPORATION

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FACTORIES: PERTH AMBOY, N. J. • WOODBRIDGE. N. J. • SOUTH AMBOY, N. J.

For this striking new store interior of Kaufmann's in Pittsburgh, Black Carrara Glass was used for the pillars, topped with their interesting lighting devices. Janssen & Cocken, Architects. Mellon Stuart Co., Contractors.

PILLARS OF POLISHED BLACK

Sheer columns, gleaming black, rising straight from floor to the ceiling—what an accent of modern beauty they create in today's interiors—whether store, hotel, theatre, restaurant or residence!

And this beauty, when secured by the use of Carrara Glass, is permanent. Carrara is easy to handle, easy to keep clean and bright. Its non-porous surface does not stain or lose its polish.

The vogue for black in decoration brings constant need of just such a material as Black Carrara. Let our Architectural Representative give you the complete story of its possibilities and answer any questions you may have.

PITTSBURGH PLATE GLASS COMPANY, PITTSBURGH, PA.

Conveniently available through warehouses in all the Principal Cities of the United States

CARRARA

Polished Structural Glass

The display windows of Rich, Schwartz & Joseph Co., Nashville, Tenn., equipped with Desco Store Fronts

Desco METAL STORE FRONTS

REG. U.S. PAT. OFFICE

2

Serve a Double Purpose

For full architectural details see Sweet's catalog. Write us for complete working data and price list. Remember, too, wherever you are there is a distributor near you. We also carry a complete line of "Desco" construction material in our New York City Warehouse.

As frames for the beautiful and persuasive display windows employed by progressive retailers to attract the public, Desco Store Fronts are doubly useful. For, in addition to their own beauty and the dignity they add to window displays, they are sufficiently flexible to protect the glass against abnormal wind pressure. Made in a wide variety of metals, solid copper, plain or embossed, and solid bronze in all standard finishes, and in chrome nickel aluminum alloy, Desco Store Fronts harmonize with every building exterior.

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New York Office and Warehouse—344-346 East 32nd Street
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A new kind of beauty has come into the business of erecting beautiful homes . . . The Beauty of Protection. For the Hays Copper Plumbing Method, with its leak-proof feature, is a hidden protection to the architect's finished work.

COPPER
PLUMBING
protected
WITH HAYS
DOUBLE SEAL
CONNECTION

THE multiple advantages of copper plumbing, when properly understood, have infinite interest for both architect and home builder. The ease with which copper plumbing can be installed, the permanent service it gives, its resistance to corrosion and other old-time troubles, not only stir the imagination but arouse a new sense of dependability. And now the Hays Copper Plumbing Method, with its new protection in the Hays Double Seal Connection, advances copper plumbing to newer usefulness. We know that every architect will be interested in the facts we can send him about the Hays Method. May we send *you* these facts?

HAYS
MANUFACTURING
COMPANY
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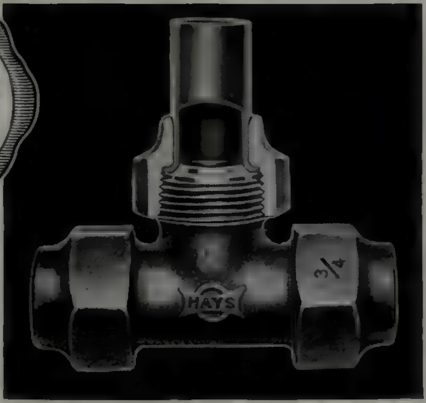
The Hays Double-Seal Fitting is a 45-degree plus a 90-degree Connection

Patent Pending



HAYS

DOUBLE SEAL CONNECTIONS

The light blue-grey of natural Alberene Stone for color accent in Sacred Heart Church, Pittsburgh, Pa.

Carlton Strong, Architect

Complete data and plates in full color showing Alberene Stone in conjunction with marbles and other building stones make "Architectural Alberene" of interest to any architect wishing further facts. Copies sent gladly on request.

The greatly diversified uses of Alberene Stone are shown admirably in Sacred Heart Church, Pittsburgh, where cap, corbels, base, border, and stoups are all of this Virginia soapstone.

Offered in a variety of textures, Alberene can be used either for accent or in harmony with other building stones. Dense and close-grained, Alberene is easily carved and machined. It is highly resistant to moisture, weather and traffic.

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THE NATURAL STONE OF DIVERSIFIED UTILITY

WHERE ECONOMY POINTS TO SHEET STEEL

NOT only in up-to-date offices, but where ever economy points to sheet steel for security and continuously efficient service, there you will find AMERICAN sheets.

For thirty years AMERICAN sheets have proved their worth, and are constantly improved as research and experience point the way.

An AMERICAN engineer is ready to help you select the proper sheet for your product. We manufacture a complete line of Black and Galvanized Sheets, Formed Roofing and Siding Products, Tin and Terne Plates, for all uses in the construction field. KEYSTONE Copper Steel Sheets and Tin Plates give maximum endurance and rust-resistance. Time and service prove this.

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COPPER STEEL
AMERICAN
SHEET AND TIN PLATE
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TRADE MARK REG U S PAT OFF

The Sign of Superior Rust-resistance

Save with Steel

CONTRIBUTOR TO TRADE RESEARCH DIVISION, NATIONAL ASSOCIATION OF FLAT ROLLED STEEL MANUFACTURERS

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

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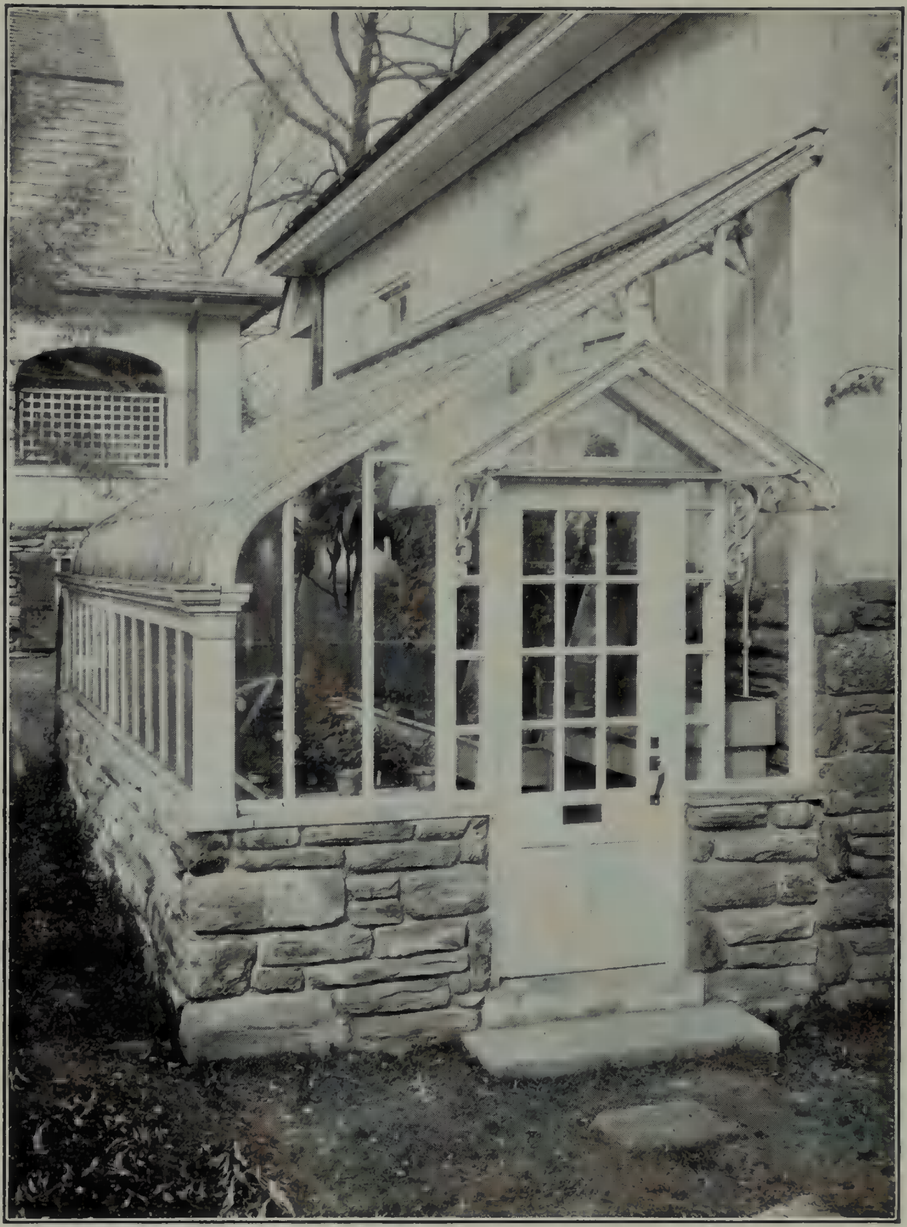

This sheltered southern nook

just demanded a delightful King Lean-to

Perhaps one of the greatest virtues of King Greenhouses (so far as architects are concerned) is their broad versatility of application. Not confined to any one use, nor one style of design, Kings are freely adaptable to almost any type of architecture and to any location.

The illustration above shows how a King lean-to was adapted to a cozy southern nook, with exceedingly gratifying results to the home-owner.

King Greenhouses are eminently attractive and constructed throughout of superior materials and keen workmanship . . . May we send you complete details? Perhaps our Architects' Bureau might be able to give you worthwhile help (including rough sketches) on some of your present work . . . Your letterhead will bring promptly Catalogs and a portfolio of photographs.

OUR CATALOGUE IS FILED IN SWEET'S

KING CONSTRUCTION COMPANY

515 Wheatfield Street - NORTH TONAWANDA, N. Y.

NEW YORK CITY PHILADELPHIA, PA. BOSTON, MASS. SCRANTON, PA.
TOLEDO, OHIO BRIDGEPORT, CONN. SCHENECTADY, N. Y.

HOW *ONE* VOICE MAY BE HEARD IN *15* ROOMS . . . (OR *1500*)

We have entered upon a truly new era. Mere walls need no longer impede the distribution of sound throughout a building. No vast auditorium is too vast for even the tiniest human voice.

These broad general achievements of the Western Electric Public Address System are already quite well known. Architects, in recent years, have taken notable advantage of the properties of this System for amplifying sound and "wiring" it to various parts of hotels, schools, hospitals and public buildings.

A convincing example of the far-reaching power of the System to revise existing methods is the typical school installation.

Reading and writing—and radio

The principal addresses the entire school every morning—from his desk. The "gym" teacher puts the whole school through its paces—from his office next to the gymnasium. The President of the United States addresses Congress—and every child in the school.

Yet not a pupil leaves his accustomed place in his room. The Public Address System brings all voices to him. Over its wires, come the voices of the day and, with the aid of a radio receiver, the voices of the air. The world is the schoolroom.

But for all that the surface has been scarcely scratched.

Only the beginning—

True, in educational circles, fundamental changes are occurring. True, in modern hospitals, the blessed relief of music has been brought to every convalescent's bedside. In a great gathering of 300,000 people every word of a single speaker has been heard. In up-to-the-minute hotels, musical entertainment in every room has become as expected as the morning paper under the door.

Yet—what a challenge to the ingenuity and far-sightedness of the architectural profession!

What architects have done with this System to serve their clients, their profession and themselves is an interesting story, available through the distributor of this Western Electric product, the Graybar Electric Company.

Offices in 76 principal cities.

THE GRAYBAR TAG
SYMBOL OF
DISTRIBUTION

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GRAYBAR ELECTRIC CO. A. R. 3
Graybar Building, New York, N. Y.
Gentlemen: Please tell us what is being done with the Western Electric Public Address System.

Name ....

Address ....

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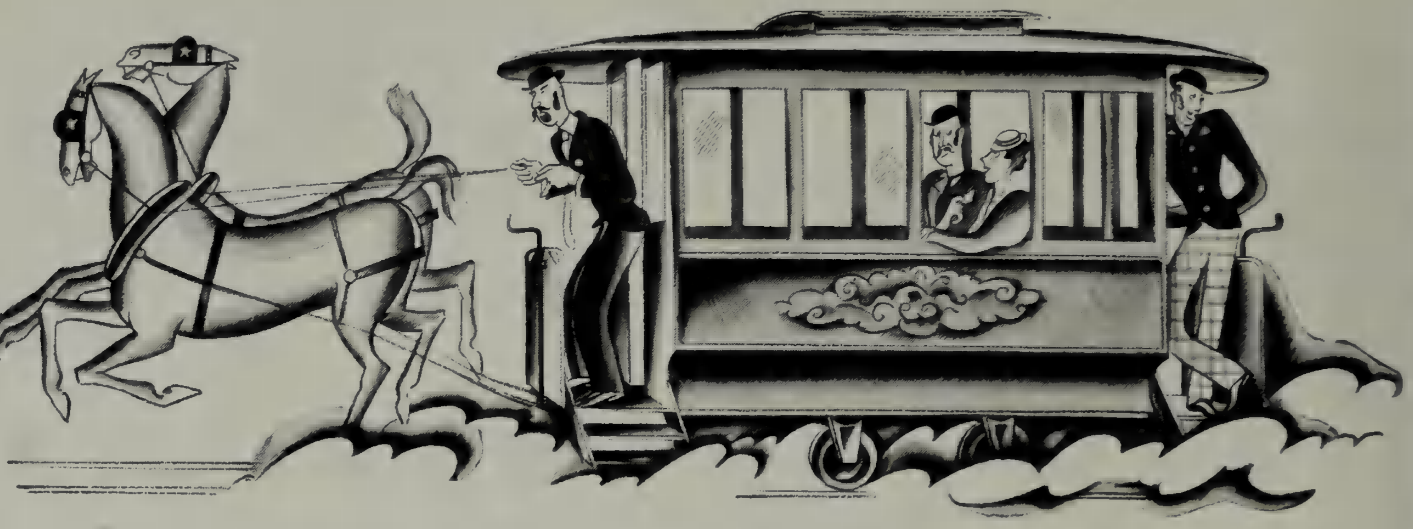

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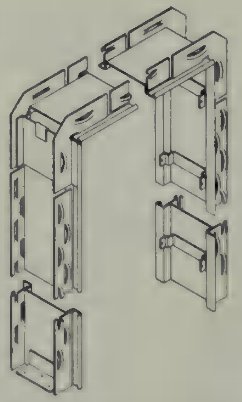

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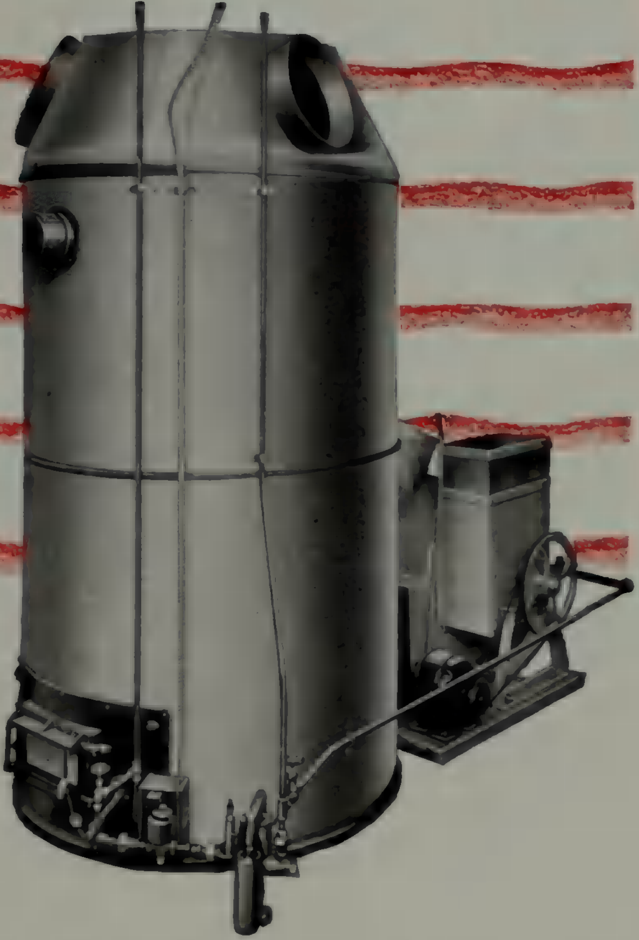

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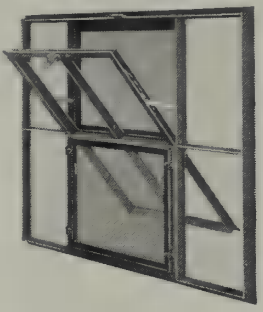

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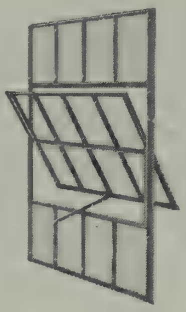
Pivots exclusive to this window are located at center of ventilator. Friction adjusters hold ventilator securely and horizontal bar provides close fitting screen contacts.



Pivoted Windows

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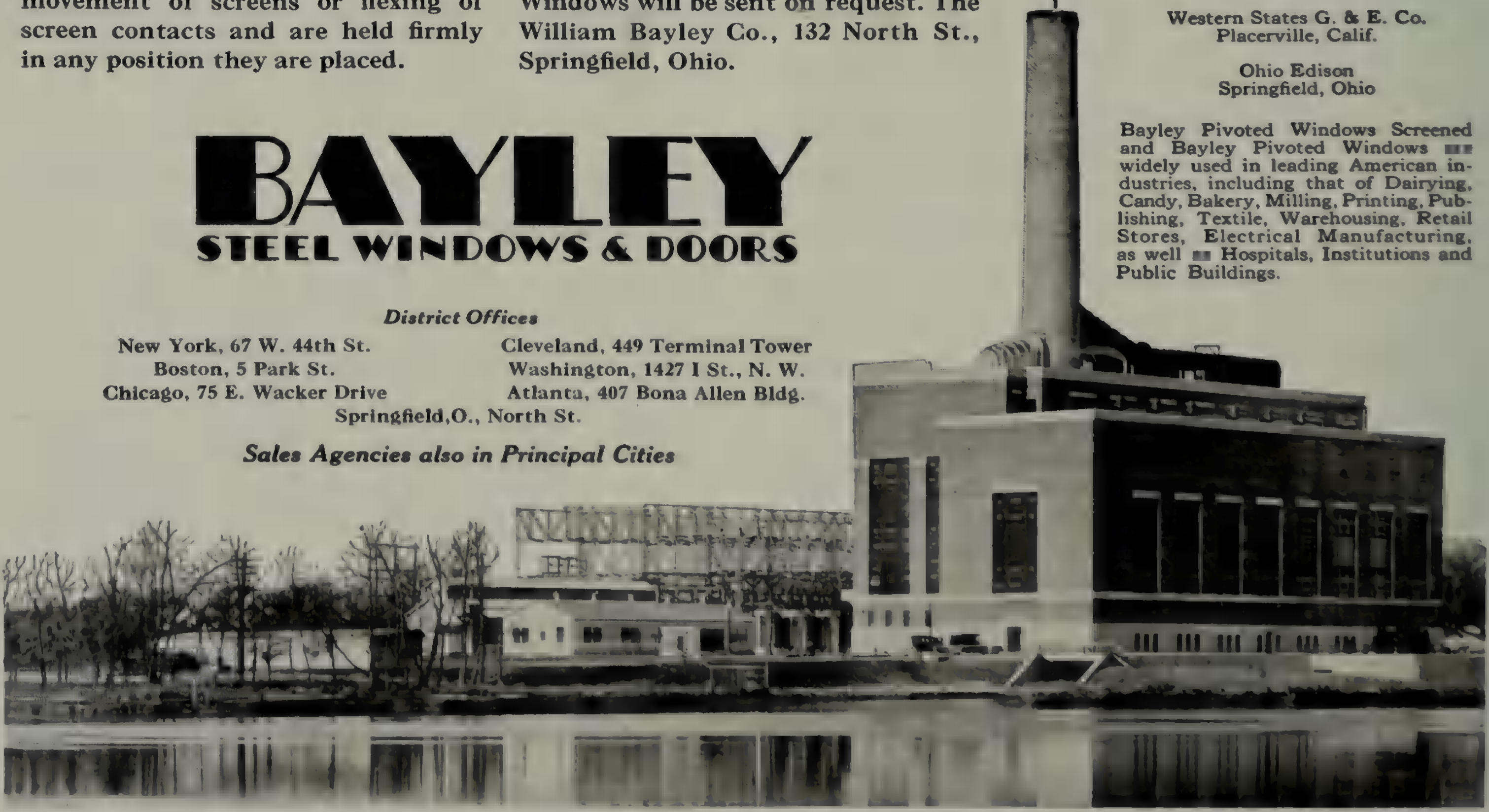
Bayley Pivoted Windows Screened and Bayley Pivoted Windows are widely used in leading American industries, including that of Dairying, Candy, Bakery, Milling, Printing, Publishing, Textile, Warehousing, Retail Stores, Electrical Manufacturing, as well as Hospitals, Institutions and Public Buildings.



Neches Power Station, Gulf States Utilities Co., Beaumont, Texas. Designed and built by Stone & Webster Engineering Corp. of Boston, Mass.

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The Charles Parker Company, established almost a hundred years ago by Charles Parker for the manufacture of fine guns, has for many years added to its original activities the production of high grade bathroom accessories—finished, like Parker guns, with a skill of design and workmanship and an attention to detail that have made them a standard of quality in their field. Every type of metal fixture and accessory used in the bathroom is included in the Parker line—it is COMPLETE.

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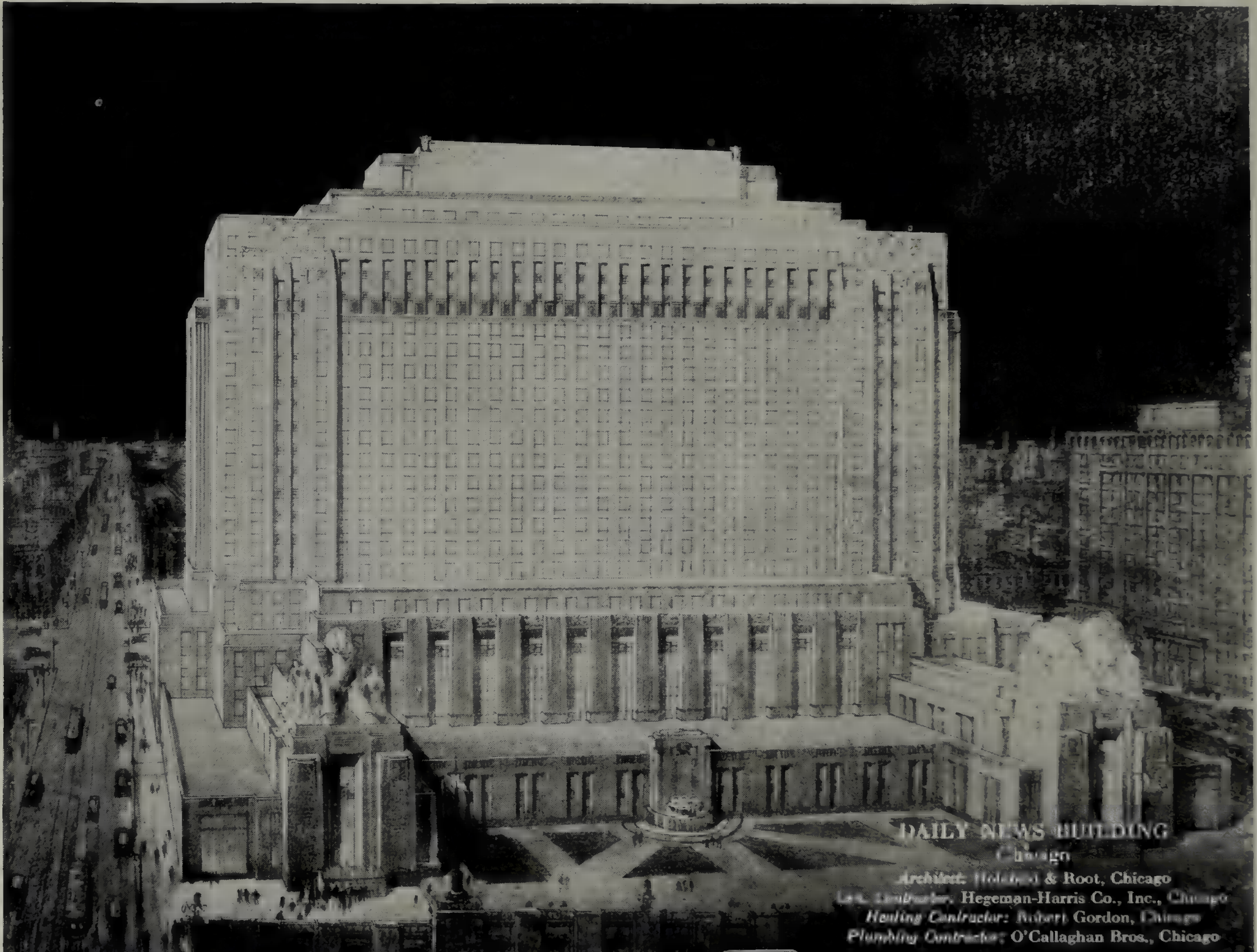
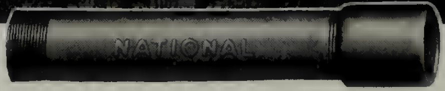


DAILY NEWS BUILDING
Chicago
Architect: Holabird & Root, Chicago
Gen. Contractor: Hegeman-Harris Co., Inc., Chicago
Heating Contractor: Robert Gordon, Chicago
Plumbing Contractor: O'Callaghan Bros., Chicago



THE recent completion of the Chicago Daily News Building marks the beginning of a new era in Chicago's building history . . . a step toward utilization of air-right areas . . . an extension of a great business district . . . a milestone in the beautification of the Chicago River front. This interesting structure—built over railway property—pioneers a development of tremendous importance to the industrial and commercial life of this great city.

In view of the unusual ingenuity required in the planning of such a building . . . care and precision in the selection of equipment were uppermost in the minds of the architects, engineers, and contractors responsible—outward beauty should reflect inward quality . . . only enduring materials could qualify. Therefore, when it came to the selection of pipe, a vital part of the mechanical equipment, the major portion used was NATIONAL—

America's Standard Wrought Pipe

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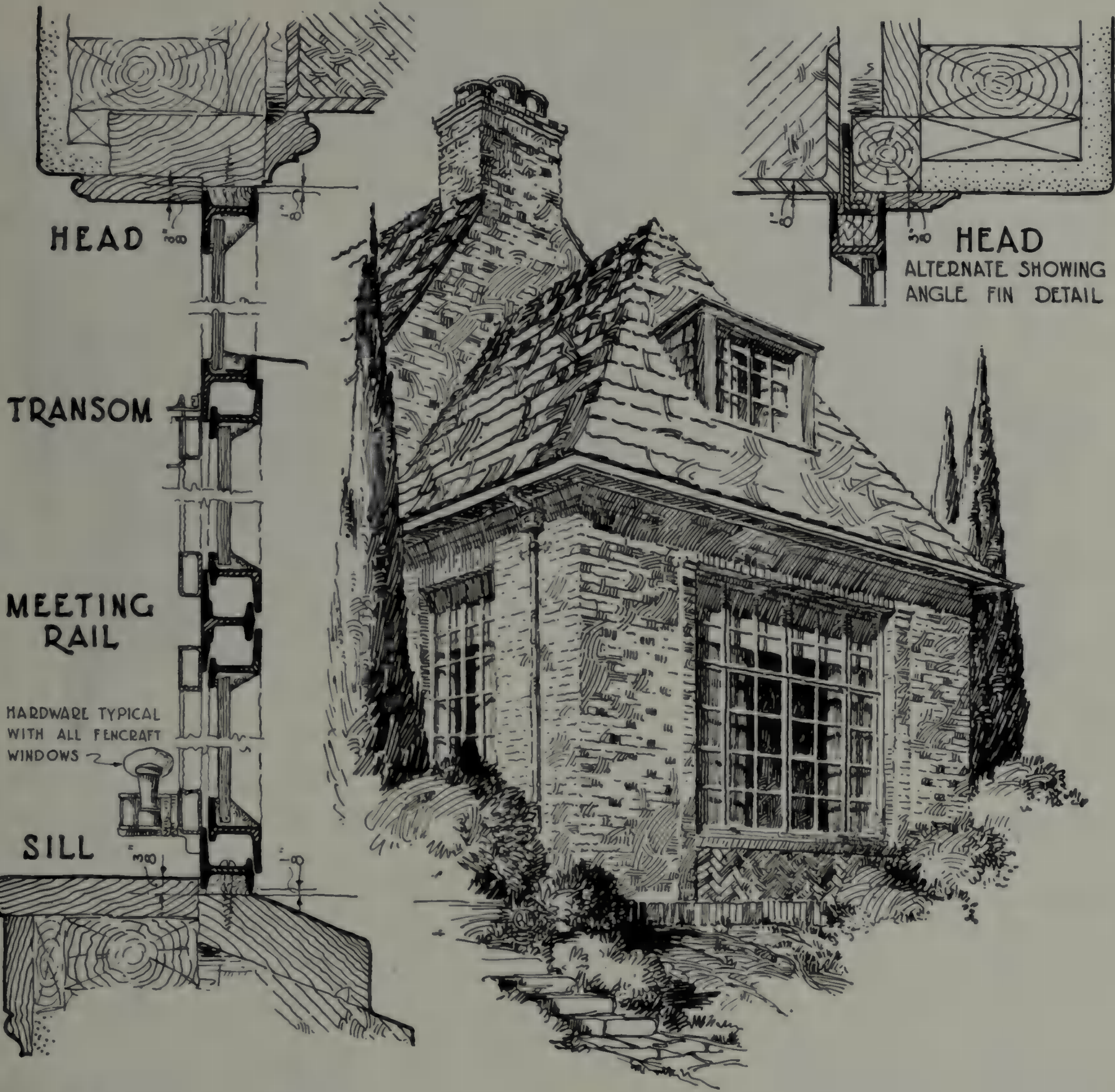
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Geo. W. Kelham, *Architect*

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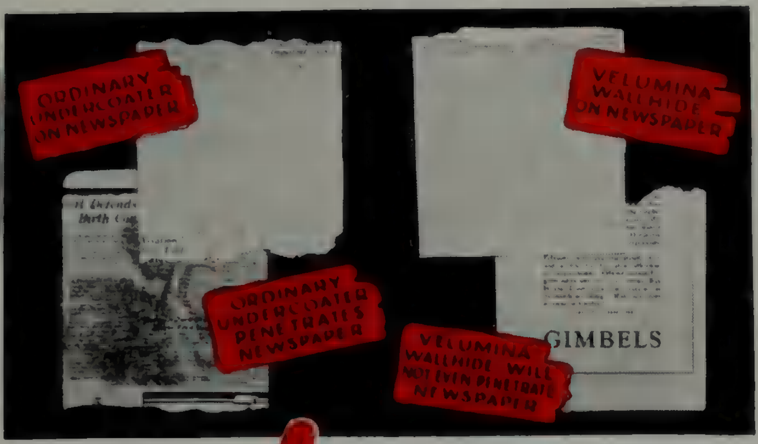
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ORDINARY UNDERCOATER PENETRATES NEWSPAPER
VELUMINA WALLHIDE WILL NOT EVEN PENETRATE NEWSPAPER
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H. H. Sherman, *Secretary*

GRANITE

APARTMENT HOUSE NUMBER MARCH 1930

Creating the OPPORTUNITY for Design

Perhaps the greatest marvel of our fine apartment buildings is that they can exist at all. In no field are there so many hampering restrictions. And if, in the year of 1930, we still find such makeshifts as light courts, long hallways, awkward interiors, and windows looking straight at their neighbors, the architect is hardly to blame. He never had a chance!

The real cause of all these bugbears is well known to every architect. Mr. Henry Wright, after long study, declares that the worst apartments and flats are almost always the result of unthinking sub-division of the land. And President Hoover (quoted at the right) concurs in ascribing the faults of our housing to a lack of city planning.

It is time to cut through this Gordian knot. Mr. Wright in the present number undertakes to show how, using the *same* areas and the *same* outlay for utilities that we have now, a city could be laid out without a single light court, without awkward interiors, without windows staring at each other. Moreover, he retains every type of dwelling now in use.

This is not to be taken as a solution to be copied, but as an indication of perhaps the only fruitful method of approach. In the meantime there is a great fund of information in Mr. Wright's article for the planner of multi-family dwellings, especially the smaller ones, right now

In the Technical News and Research section, the problem of apartment house design is viewed from the standpoint of the family. No longer are such buildings the home of bachelors and transients. The architect who sees the trend ahead, and designs skillfully to provide for children (without letting them become "a nuisance"), and who provides for recreation and social centers, will find himself rewarded by the gratitude and patronage of the community.

PRESIDENT HOOVER SAYS:

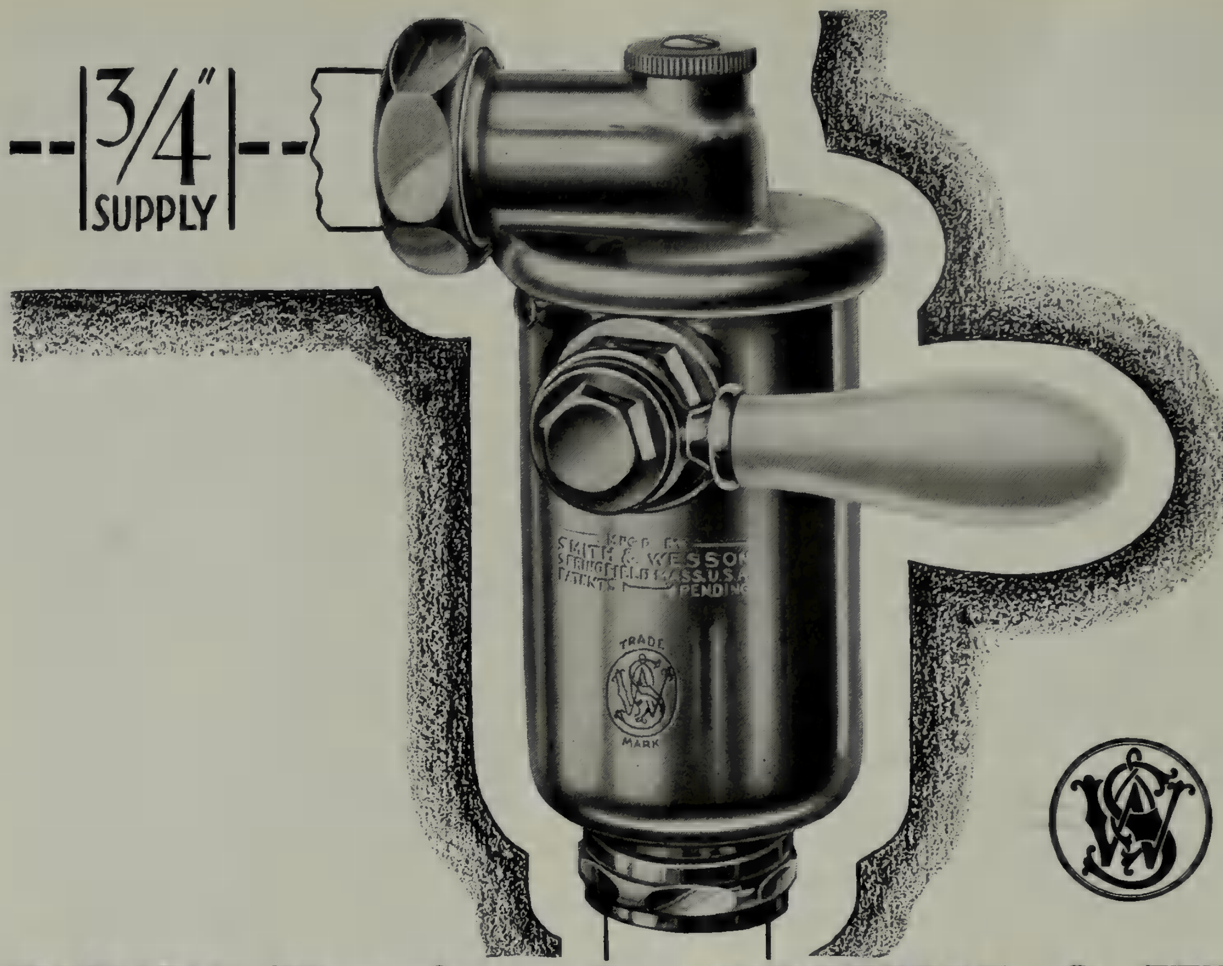
"The enormous losses in human happiness and in money which have resulted from lack of city plans which take into account the conditions of modern city life, need little proof. The lack of adequate open spaces, of playgrounds and parks, the congestion of streets, the misery of tenement life and its repercussions upon each new generation, are an untold charge against our American life. Our cities do not produce their full contribution to the sinews of American life and national character. The moral and social issues can only be solved by a new conception of city building."

MR. HENRY WRIGHT

Henry Wright is a consultant in site planning, well known for the work he has done in association with Mr. Clarence S. Stein on such projects as the town of Radburn, N. J., and the Sunnyside, Long Island, development of the City Housing Corporation. He has been chairman of the Committee on Community Planning of the American Institute of Architects. He edited the Apartment House Number of THE ARCHITECTURAL RECORD in 1929.

NEXT MONTH IN THE ARCHITECTURAL RECORD

MR. R. H. SHREVE, of the firm of Shreve, Lamb and Harmon, Architects, writes on the economic design of office buildings. In the article will be published for the first time some of the typical details of the *Empire State,* to be the highest building in the world. Mr. Shreve also analyzes other office buildings *large and small* from all sections of the country, from the standpoint of space utilization. There are many most important charts, and there is considerable wisdom on the subject of working out problems with owners, operators, managers



NEW Design *by* SMITH & WESSON

Produces a FLUSH VALVE that gives a Dependable Flush with 3-4 Inch Supply

A Dependable Flush

Among the many important features of the Smith & Wesson Flush Valve is its ability to give a dependable flush with a ¾" supply. Its operation is satisfactory at a pressure of 15 pounds where a minimum of 30 gallons per minute can be supplied at the valve.

The use of ¾" pipe means lower installation cost. This, with its all metal construction, and other important features, makes for a degree of "buyer interest" never before attained.

You can recommend and install this valve with full assurance that Smith & Wesson have produced a flush valve only after a thorough study of flush valve requirements.

For Further Information Write

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BATTERY TOWER

The first unit in a residential city
to be built on the tip of Manhattan,
facing the Hudson River.

THOMPSON AND CHURCHILL, ARCHITECTS
Rendering by Chesley Bonestell

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
ARCHITECTURE & THE ALLIED
ARTS & CRAFTS

VOLUME 67 MARCH · 1930 NUMBER 3

THE PLACE OF THE APARTMENT IN THE MODERN COMMUNITY

BY HENRY WRIGHT, ARCHITECT

PROBABLY in no other field of design are there so many aggravating restrictions as in that of the apartment house. Here planning must take into account the most awkward restrictions of shape and area in the site; the most exacting demands of rental returns on high leaseholds; and the combined and overlapping restrictions of patchwork building codes, zone laws, and (in certain states) the erratic details of antiquated tenement-house codes. So peculiar and exacting are the interpretations of this last agency, that some of our best architectural firms, not specializing in apartment house work, have found it necessary, after executing what would otherwise be a complete and creditable design, to turn their work over to others specializing in speculative apartment building for a final dotting of the i's and crossing of the t's to pass the departmental inspectors.

Now it is with these difficult conditions in mind that we turn our thoughts again on this occasion to the year's progress in multifamily or apartment house planning, design, and construction, of the rank and file.

Without wishing to place too much reliance on mass statistics which, without careful analysis, may readily lead to false interpretation, we cannot fail to be impressed by the growth of the multifamily dwelling in the cities of our entire country. For the year just past we have built, in our fourteen largest cities, nearly three flats or apartments for every one- or two-family house.* Throughout all cities of over 100,000, of which there are 85, and which contain most of our population not living on farms, we have built 60% multifamily as against 40% single-family houses. The objection that such statistics are distorted by returns from New York and one or two other large cities, and so are not representative, is not borne out by the facts. Not only does New York continue to contribute a fair share of single family dwellings (in jerry-built wooden houses of which the less said the better) but, on the other hand, both New York and Chicago are illustrating the apartment house trend by definitely merging from a period of bad small-unit multifamily dwellings to a more promising (though far from ideal) standard of *large* apartment buildings.

Then there are certain of the old single-family standbys that have come, tempo-

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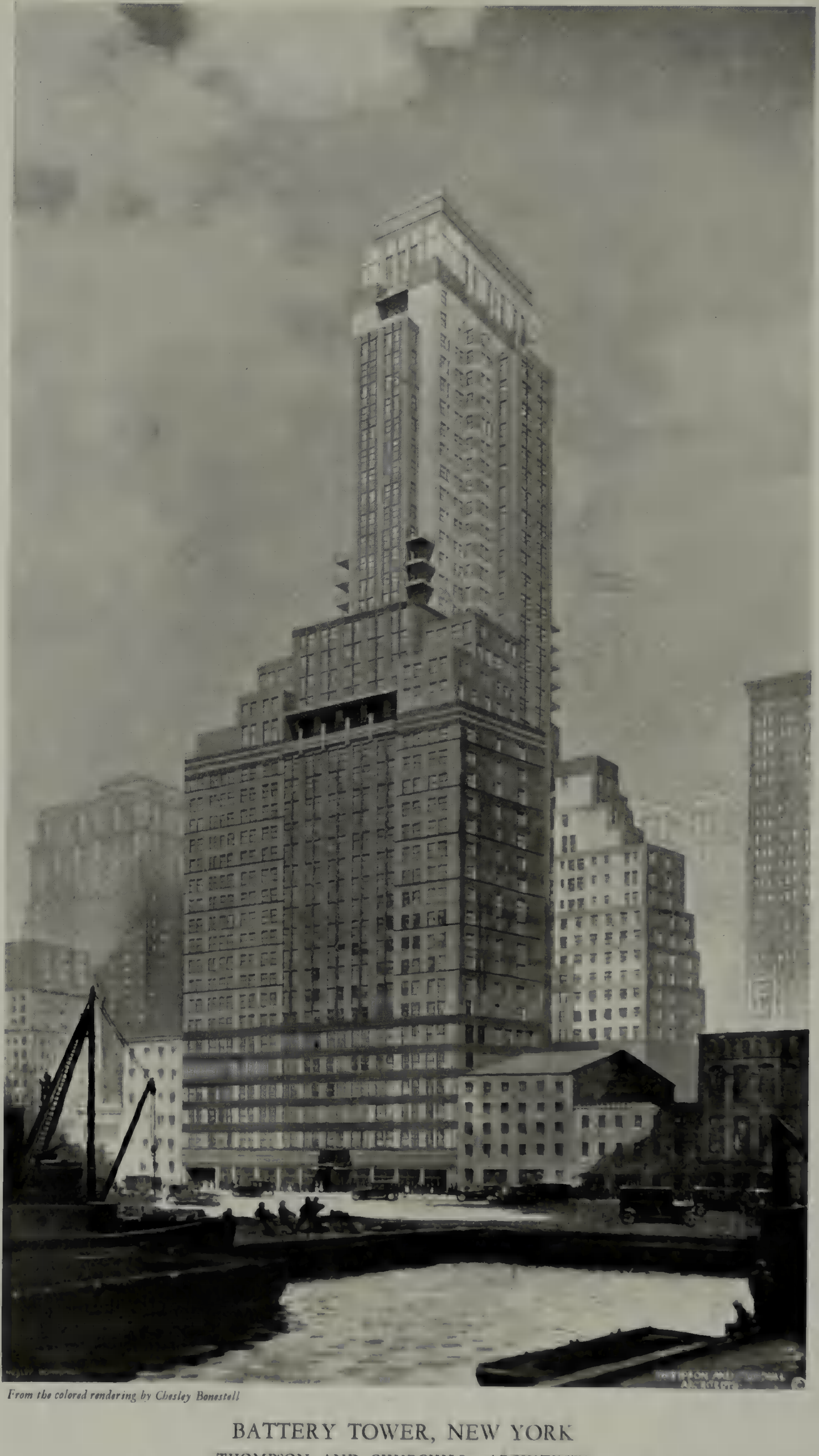
* Throughout this paper the "single-family" dwelling refers also to the "duplex."



From the colored rendering by Chesley Bonestell

BATTERY TOWER, NEW YORK

THOMPSON AND CHURCHILL, ARCHITECTS

A residential development on the tip of Manhattan. For plans see page 295.

rarily at least, into the opposite column. Philadelphia, long the pride of those to whom the existence of a large percentage of single family houses was of more importance than the quality of the individual unit; and Kansas City, a stronghold of attractive and economical small houses, both passed over to the 40–60 ratio of multifamily to single-family dwellings during the first six months of 1929.

These figures may, of course, in individual cases represent a temporary condition caused by a lull in building or a shift in the loan market, but such factors can hardly be regarded as important ones in the present overwhelming trend toward multifamily building. The effective causes are probably to be found, individually or in varying combinations, among the following:

1. *An actual preference* by many people for the multifamily dwelling.

2. *An actual economy* which places the multifamily dwelling within the means of an increasing number of people who could not afford even the most flimsy of single-family houses in an inconvenient and incomplete neighborhood.

3. *The preference of loaning institutions*, which have found that, under present conditions, the more elastic equity of the multifamily building is to be preferred.

Probably the third of these causes is the most potent for the present. Just after the war, with strange new price levels, timid individuals and loaning institutions preferred to take a chance on small individual house loans with fairly rapid amortization, in the belief that, even if prices should fall off, the individual owner would stick by his bargain. But now building costs, despite expectations to the contrary, have continued a steady climb throughout the ten years from 1920 to 1930. This has resulted both in making the individual house a luxury and in establishing confidence in the multifamily dwelling.

Against such factors favorable to the larger buildings we must put two opposing ones: first that our prevailing small flat-buildings are badly planned and unlivable; and second, that rentals have been more or less irrevocably expanded on a basis of extravagant financing costs. So there may be an occasional back-swing of the pendulum giving a semblance of hope to those interests, and to that larger body of people among the disinterested public, who ever hold the single-family house in tender regard.

But let us suppose for the moment that conditions most favorable to the single-family house (including a marked improvement of its economic status and modernization of its form and construction) may happily arrest the present trend and hold the ratio at 2 to 1 of multifamily to single-house construction in urban areas: the concern of the writer would still be not with what is happening to this single-family third, but to the multiple building which houses two-thirds of our citizens. Can we longer turn our backs and feel that, because we may not like the idea of people living in such dwellings, we shall do nothing about designing them, and continue to relegate them to noisy locations of a poorer, left-over sort, while we continue to sub-divide our land in a manner which, not even suitable for private dwellings, is utterly abominable as a base for the larger structure?

Is it not time to take account of the place of the apartment in the community:

1. What kind of apartments are we getting?

2. Are the conditions favorable for making them the best possible places for living in?

3. Are they assuming their share of the responsibilities of the City?

4. Does the City assume its responsibilities toward the apartment?

5. How can a proper place be made in the apartment for the child inasmuch as we can hardly expect children to be possible only to the one-third of our families living in private houses.

Photo. Fairchild Aerial Surveys, Inc.

Central Park, New York City. The tall apartment, seeking a favored location on parks and main avenues, naturally gravitates to the periphery of every area bounded by main arteries

WHAT KIND OF APARTMENTS ARE WE GETTING?

There is a conspicuous tendency observable in our largest cities toward large elevator apartments. These are seeking the most favored areas, best served by streets and transit facilities, bordering on parks and lake fronts, and accessible to every sort of public improvement and social advantage.

Unfortunately, in spite of creditable advances in theoretical City Planning and applied Zoning, these desirable areas are still relatively few, leaving the hinterland very different indeed. The limited extent of the desirable locations makes for a large apartment to carry the high land value; and this type of building will continue a strong factor until the cities, recovering from the dislocations induced by rapid suburban expansion, can turn again to the difficult task of resurrecting their own internal mass of blighted areas.[*]

However, this new trend is not yet so dominant as to displace the popularity of the speculatively built small multifamily

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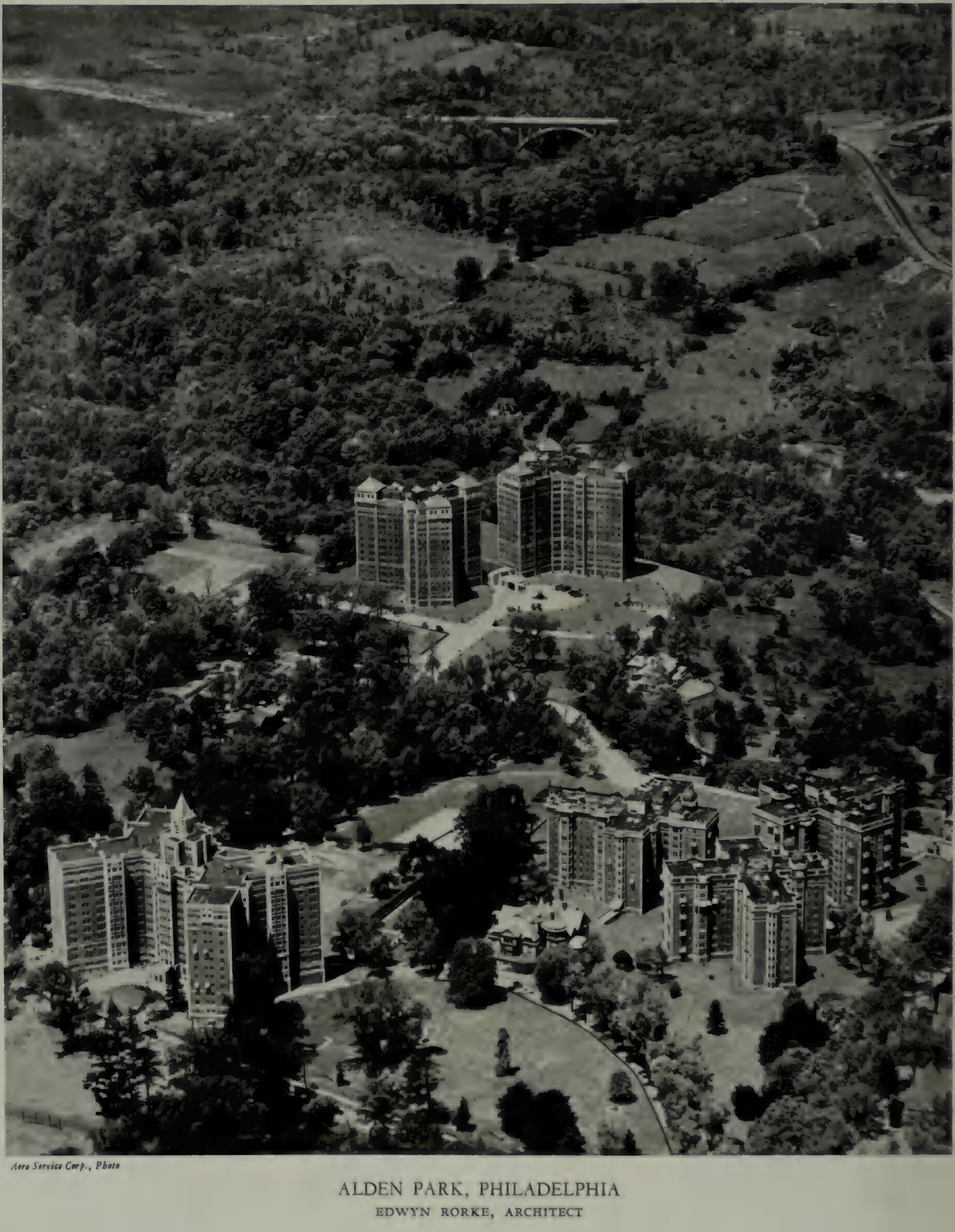
[*] The general situation may be indicated by statistics from New York City. The total expenditure there in 1929 for apartments dropped from the 1928 level by 9%; but the number of apartments produced dropped 30%, by the fact that expensive Manhattan, which contributed only 30% of the total cost in 1928 went up to 60% in 1929, while the less expensive Bronx fell off, from 30% in 1928 to 17% in 1929. Since Manhattan apartments averaged $2,300 per room as compared with $1,200 for the Bronx, the large increase of money spent in Manhattan resulted in only a small increase of rooms built. In Manhattan 137 apartment houses cost an average of $1,250,000 apiece, housed an average of 115 apartments, and reached an average height of 17 stories. Nearly $40,000,000 was invested just in new apartments facing Central Park. However, these finer grade structures suffered heavily in the latter months as a result of the collapse of the stock market, and the temporary shift of many tenants from the luxury to the economy class will be an adverse factor in the coming year. On the whole there can be no question that an increasingly large clientele is developing for the finer type of elevator apartments in preferred locations. The year saw the completion of the Brooklyn Gardens Apartments, a small development carried out under the New York Housing Board, and the announcement of a $2,500,000 development on the lower East Side under the same control.

TWO UNITS OF ALDEN PARK MANOR, PHILADELPHIA
EDWYN RORKE, ARCHITECT
The multifamily dwelling goes into the country

dwelling. This in its usual manifestation is a semi-detached two-story four-family, or three-story six-family, flat. As a solution of the housing problem this is not a success. Created expressly to fit abandoned or unused allotments intended for small houses, it is arranged so as to occupy about 40 feet of street frontage; and by elongating itself backward in two rows of awkwardly arranged tandem rooms divided by a party wall, results in the least efficient and worst arrangement for living in that we have devised.

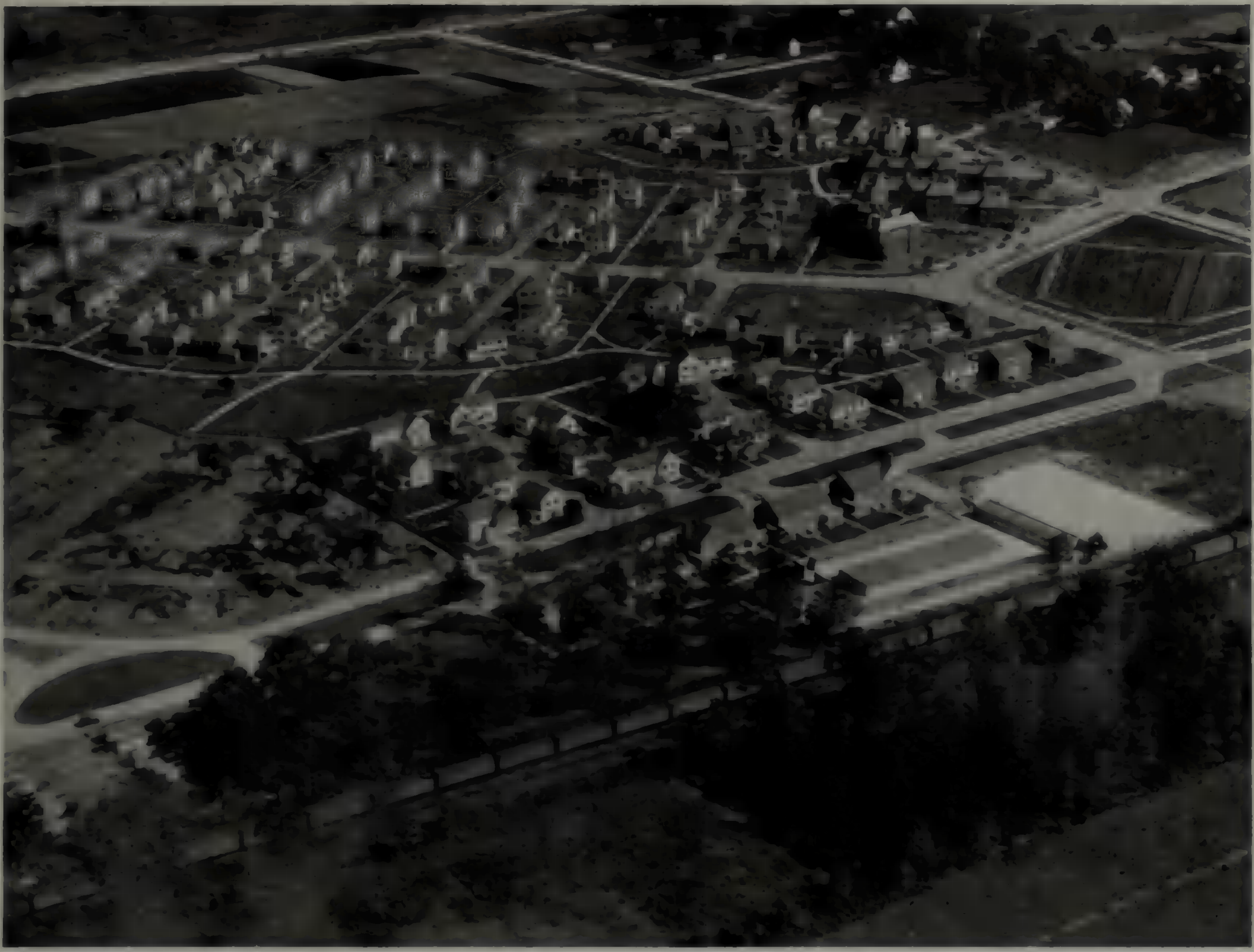
That a form of planning so unimaginative and uneconomical might occasionally occur as the product of meagerly trained builders who construct without benefit of professional planning services, would not be a matter of great surprise. That so unimaginative and uneconomical a form of planning should not only spread in our cities but now frequently be copied in small towns, where no scarcity of land can be claimed as an extenuating circumstance, is hard to credit. Zoning has made valiant efforts to segregate this undesirable type of houses, but has done nothing to suppress it altogether or improve its form.

This "flat" is an apartment with varying degrees of common services. One of its appearances is in a two-story form with a minimum of apartment service (or in Boston, until lately, with no added service in a three-decker: the third-story tenement descends three flights of stairs to tend his hot air heater). In the three-story form it has very recently been supplying a higher class clientele in St. Louis and along the boule-



Aero Service Corp., Photo

ALDEN PARK, PHILADELPHIA
EDWYN RORKE, ARCHITECT



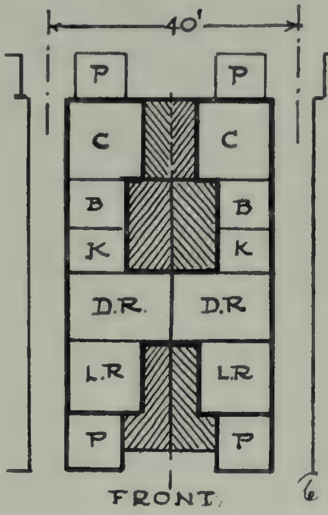
RADBURN, NEW JERSEY, A TOWN LAID OUT BY THE CITY HOUSING CORPORATION

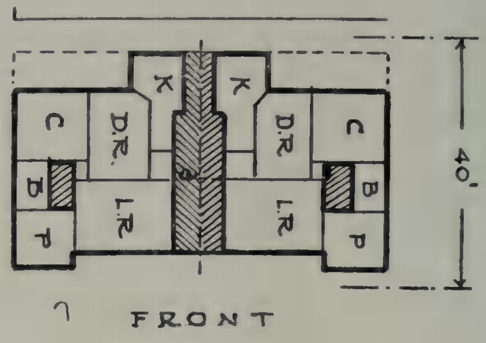
Henry Wright and Clarence S. Stein were associated on the layout and planning of the houses. Some houses were designed by Frederick L. Ackerman, Architect. The apartment house by Andrew J. Thomas, Architect. Here is the apartment house found necessary in a town of small houses

yards of Kansas City, and in other cities of the central states. These cities and more western ones have lately been taking to the equally inefficient so-called "*efficiency*" apartment. It also appears in the outskirts of Greater New York in a variety of forms. Generally in New York the rental suites have heat and hall services supplied by the resident owner, thus reducing the necessity of both front and rear stairs; but thereby losing some of the more homelike advantages of the western counterpart. New York has also evolved a form of two-story eight-family, semi-detached flat with four apartments facing the street and four behind, the latter with the outlook from every window limited to whitewashed light courts ten and fifteen feet wide. This plan has lost the advantage of the last vestige of lawn grass, which had been retained in miniature in previous four-family models. These and other popular forms of tenements in New York have eliminated the last touch of green by paving in concrete every square foot of area not covered by building, from the curb to the rear lot line.

Since between one-third and one-half of our city dwellings are at present built according to some form or other of the foregoing makeshift plans, the architect can hardly limit his mental outlook to those "Master Apartments", which rise above the mass here and there.

At Left: Tandem four-family St. Louis flat
Below: Broad-front St. Louis flat





Above:

The plan at the left shows the St. Louis four-family tandem flat at its maximum extension. The rooms are arbitrarily disposed and arranged with much wasted space. The dining room is too large and the sleeping quarters are too small. The porch is an effort to extend the bedroom space.

The plan at the right is of a house in an adjoining area, demonstrating what can be done to reduce waste area and improve the disposal of an use area equal to that of the first example. The shaded areas in both cases represent waste.

At right:

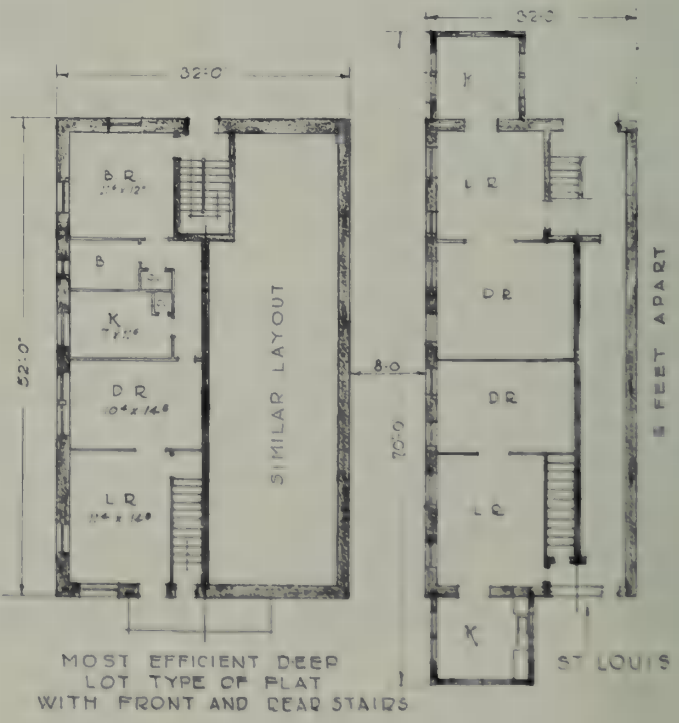
A rather more than usually efficient flat is sometimes arranged for four-room suites in the manner here shown.

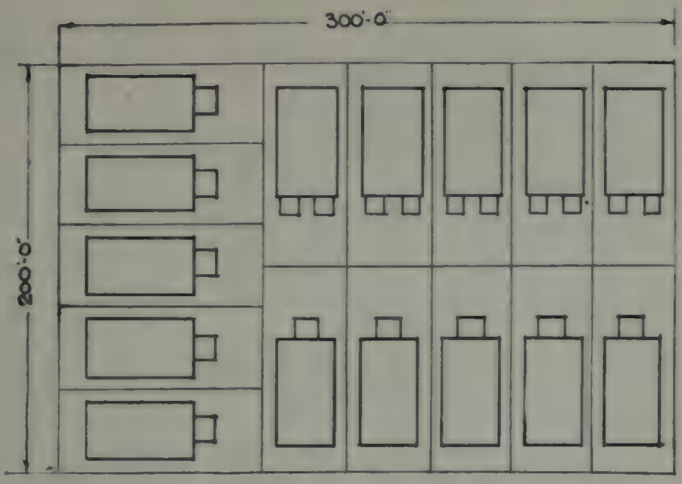
Porches are sometimes added which allow an extension of the bedroom for the needs of small children in the family.

As shown on the right, each pair of buildings is 32 x 52 with eight feet between, a minimum for driveway to garages behind.

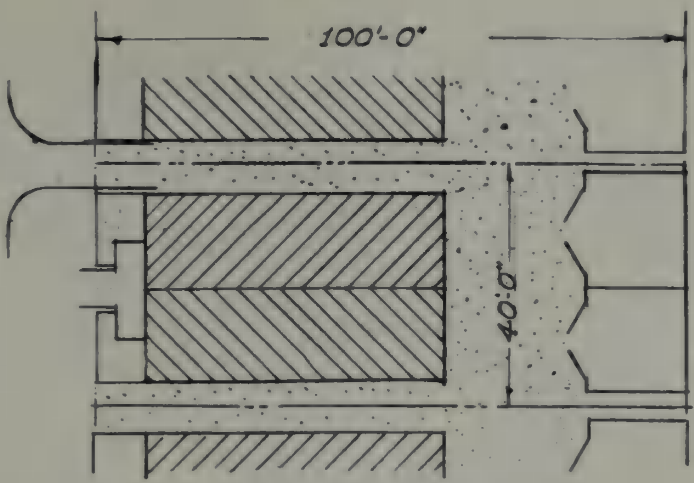
The gross area of each floor is 1,664 square feet of which 1,088 is usable counting the dark end of the narrow dining room as use space. An efficiency of 65.3%.

The front stairs are separated for individual cleaning. The back stairs are used in common to afford access to individual heating plants in the basement. These stairs are expected to take care of themselves, or be cleaned by the resident owner.





The diagram shows one-half of a 600-foot block. With the deep-lot apartments shown at the bottom of the opposite page, this area holds 15 buildings—120 families to the whole block—as compared with 60 houses on 20-foot lots

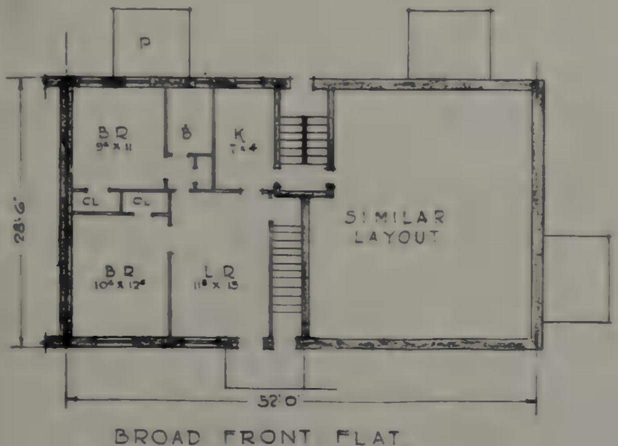


Enter the garage. Two double garages in the rear take up half the "back yard" and concrete paving takes up the rest. The result is that the last vestige of green has disappeared

ARE CONDITIONS FAVORABLE TO MAKING THEM THE BEST POSSIBLE PLACES TO LIVE IN?

We have already trespassed upon our second query. But given just a modicum of encouragement and thoughtful care, the vast multifamily tribe might be evolved into a form of habitation at least passable and economical. Of the deficiencies of the small landlord we are fully aware, and even with the best of planning the individual four or six-family dwelling with resident ownership service is likely to exhibit most of the objectionable features of the larger apartment, while adding those of unstandardized and inefficient management. *Yet the small multifamily building has its place.* It is usually better for the mother with small children, for example, to be no more than one flight above the ground. By an improved arrangement, two-story flats can be given individual yards and gardens (and even basement laundry space) as illustrated in the eight-family flat built by the London County Council. The whole problem is to get a lot subdivision favorable to a broad frontage. The broad frontage at once accomplishes a number of things. The tandem living rooms are squared up into a compact and convenient arrangement, more efficient alike for building and housekeeper. The problems of access are reduced and the yard area may be subdivided for all the tenants. But, above all, the narrow side yards with living rooms looking into neighbors' windows are thus reduced or actually eliminated.

Whereas now, in multifamily sections particularly, but no less in all other forms



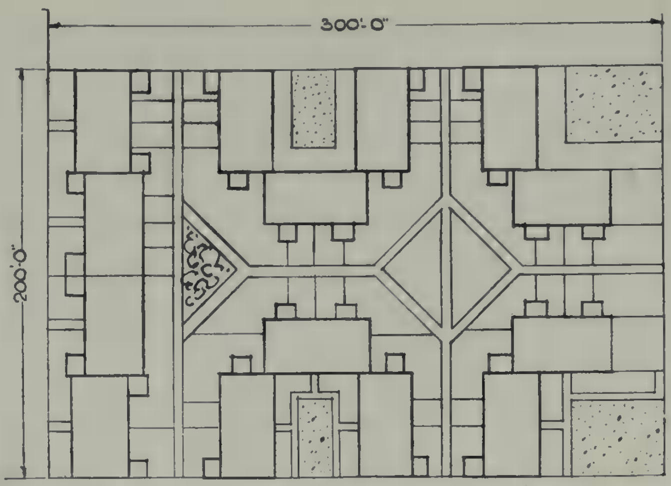
BROAD FRONT FLAT
FRONT & REAR STAIRS
12" WALLS

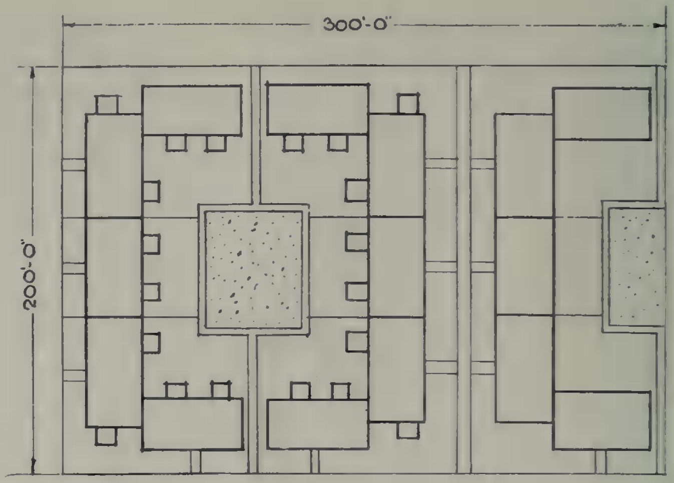
A broad front flat 52 feet x 28 feet 6 inches provides nearly the same usable floor area as that shown opposite

Grass area 1,450 square feet

Usable area 1,036 square feet, 71.59%

The arrangement of rooms here is also limited. Stair functions have been purposely shown the same as in narrow plan opposite.





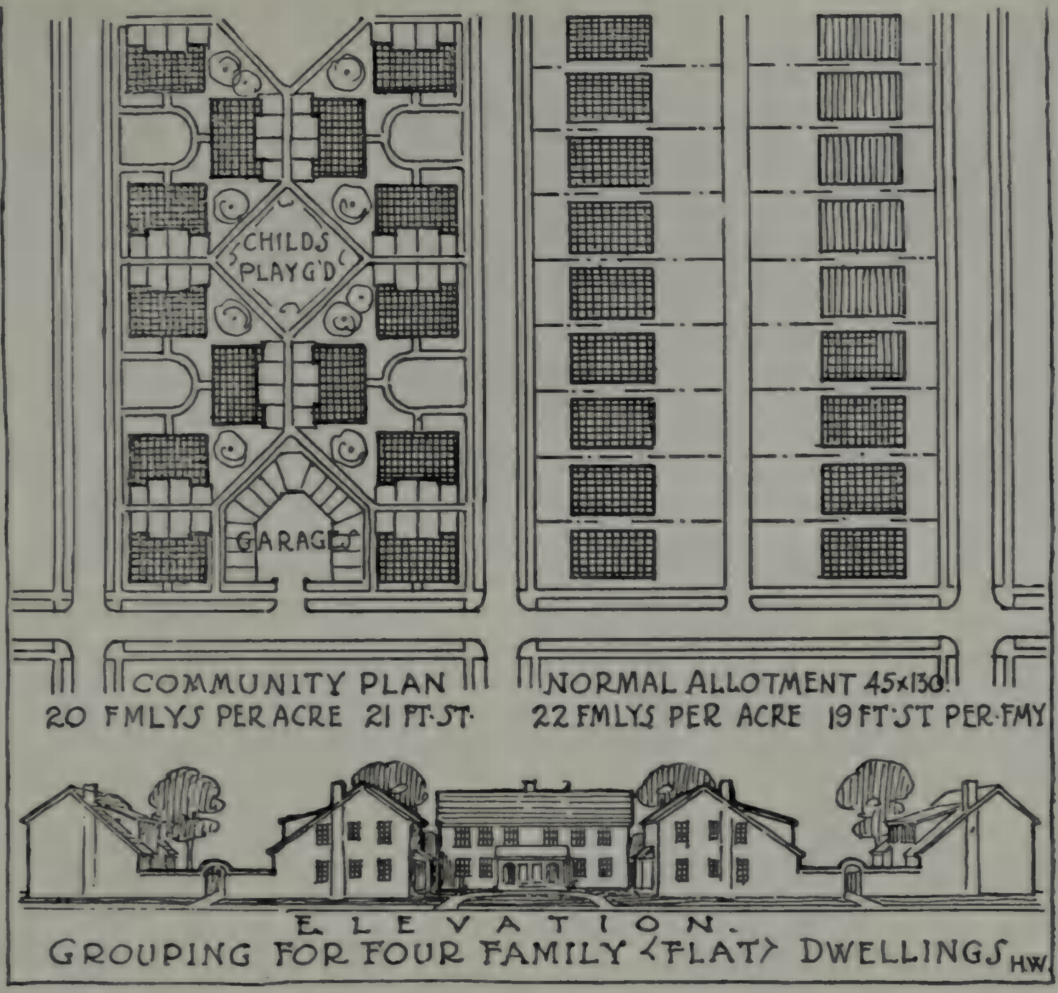
The broad-front plan requires either more land in the usual type of subdivision or a rearrangement of lot lines. When block planning is feasible, it can be grouped so as to use no more land than the narrow frontage types. Narrow side courts can be eliminated, their area concentrated in useful open spaces; and all rooms can have an outlook on spaces at least 35 to 40 feet wide. Two groupings here shown are intended merely as diagrammatic to show the contrast in openness and outlook

of apartments, a fair proportion of rooms have outlook only on courtyards and too often into neighboring windows, it is believed possible and wholly practical *to require and observe without undue hardship a Zone law* which will absolutely eliminate the existence of any room used for living purposes (baths and sometimes kitchens might be excepted, though not necessarily) which does not have outlook at least in one direction upon space ample to assure privacy and excellent light and air. This ideal is not necessarily obtained through a more general use of land but by a rearrangement of lot shapes and buildings of equal or less floor area for the same amount of usable space. To propose new lot shapes may be "locking the door after the horse has flown". But since buildings of this type, like houses, are being built for the most part in groups or blocks at a time, the problem is reduced to one of educating the builder or more directly the financing agencies who should be most interested in the inhumanity of "efficient" planning.

ARE APARTMENTS DOING THEIR PART IN ASSUMING THE RESPONSIBILITIES OF THE CITY?

Confined by restriction to high land values in locations convenient, but often exposed, the apartment building spreads out on its lot, crowds its neighbor, ignores the former building setback line, cuts down the trees and generally makes itself conspicuous and objectionable. Are these habits inherent or accidental? They grow largely from a lack of intelligent assimilation and because of the lack of intelligent adjustment to economic changes. The apartment house *does* require different basic treatment from the house; it does *not* thrive under the same laws. The house is a solid, compact little building, which is set off as far as possible from the lot lines in all directions. The apartment house is too large in bulk to be efficiently planned as a solid mass, and requires internal courts. The larger the court, the more effective and efficient the plan (See Architectural Record, March, 1929). Consequently the normal house lot cannot afford favorable room for good apartment design without encroachment upon the prerogative of the neighboring house. But the requirements of the apartment are such as to be met by a little forethought in planning the community, at the outset, for all the various forms of dwellings which have been found by experience to be required.

As to whether the apartment contributes


CHILDS PLAYG'D
GARAGES
COMMUNITY PLAN
20 FMLYS PER ACRE 21 FT·ST·
NORMAL ALLOTMENT 45x130.
22 FMLYS PER ACRE 19 FT·ST PER·FMY
ELEVATION.
GROUPING FOR FOUR FAMILY <FLAT> DWELLINGS
HW

Another way of rearranging individual houses so that wasted space is converted into playground, and windows no longer look straight into one another as with upper right

its full share or not toward the revenues, the responsibilities, and the life of the community, there is a wide difference of opinion. The actual results depend largely upon the character of the community and its method of taxation. It is alleged by some that the apartment house either does contribute or can reasonably be expected to contribute proportionately more to the tax budget than the house. The issues are confused by the present temporary situation in which the low proportion of school children from apartment families raises an unduly favorable balance in their favor. But granting some equalization of this factor, the apartment house as compared with the individual house does not require anything like the proportionate amount of public services, represented in the provision and maintenance of the street and utility distribution plant of the city. Even though the individual building requires a wider street and ample parking space, whether on or off the street, these requirements are by no means equal to those for the *same number of families* in single houses, facing the street in the usual conventional manner. There is suggested here the possibility that smaller houses be arranged in courts so as not to require the extravagant street area of the conventional suburb. But as things stand, it seems fairly certain, that, in the present suburban community comprised of a fair proportion of apartments and of single houses, the apartment does carry, or should be able to carry a larger share of the municipal load than is chargeable to its immediate surroundings.

This might be illustrated by considering a possible change in the composition of Washington, D. C., which now* houses 1/6 of its population in apartments (mostly moderate size, but few small multifamily type) and 5/6 in single family dwellings. The occupied space is about 5,000 acres, of which 275 acres or 5½% are occupied by

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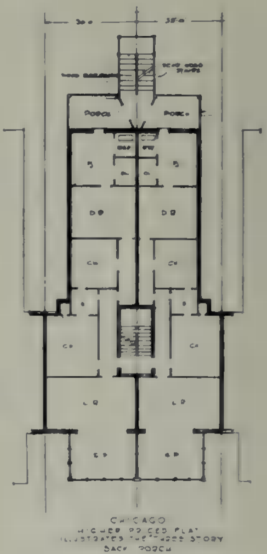
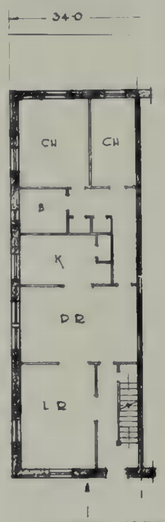
* Statistics compiled in 1926.

NEW YORK



CHICAGO



NEW YORK

New York still allows a six-foot side court and sometimes tries to divide the seventeen-foot half-building for an extra hall bed. Wider plans are also used. A single stairway is customary; sometimes arranged for access from the second floor to the basement. The second floor is an apartment with heat furnished. Deliveries come through the front stairway

Chicago has numerous variations either as flats or apartments but almost universally with rear outdoor service stairs and wooden porches. Side yards in some cases run through; in others, buildings are carried to lot lines with interior light courts. Three-story buildings are the rule in this city; all buildings over three stories must be fireproof construction and are consequently for the most part better arranged on adequate lots

apartments and 94½% by houses—all with approximately the same requirements per acre of street area, improvement and maintenance. If the city were to be altered to comply with the proportions represented in the new buildings generally, i.e., 4/6 apartments and 2/6 houses, the total area occupied could be reduced by one-half and yet leave more generous space for the apartments. The costs of all public services could thus be reduced at least 40%.

DOES THE CITY ASSUME ITS RESPONSIBILITIES TOWARD THE APARTMENT?

It is not to be thought of that in accepting the new conditions imposed by a growth of multifamily dwellings to two-thirds of the cities' housing needs, we should take advantage of a proportionate reduction in public facilities required, by confining the apartment to its present cramped quarters, or by tolerating the present inadequacies of jammed traffic and lack of parking conveniences.

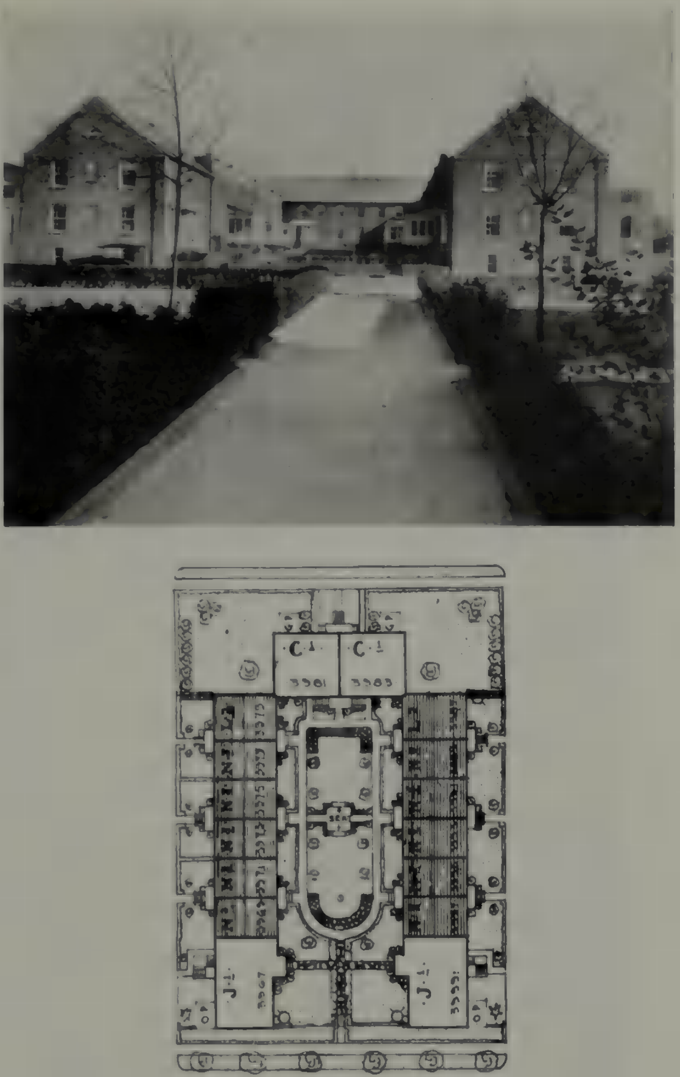
The apartment house is more or less directly the product of the automobile. Although we had early hopes, still cherished by some, that the auto by its superior individualized transportation would bring about a far-flung movement, strengthening the previous suburban trend and making every man the lord of his own castle, it has so far been disappointing in results. In the first place, it takes so much more than merely houses to make a community, that unlimited transportation possibilities are only one small factor in a complicated whole. Again the auto has tended to foster ease, independence and luxury as represented in the service of the apartment, as opposed to the responsibilities of the individual house. Most families compromise by using their car to go to the country on an occasional joy ride, but live in the apartment to meet the demands of schooling and to enjoy the other cultural advantages of the older well-knit community.

The apartment house not only does this now, in its limited way, but has potential possibilities of evolving with proper nurture into a highly desirable form of dwelling for many people. It is perfectly capable of forging its own way—even of subsidizing to a limited extent the greater service requirements of the single house in neighboring areas, and yet of yielding a surplus tax value sufficient for more adequate site and for more community requirements than have yet been realized.

GIVING THE APARTMENT A REAL PLACE IN THE COMMUNITY

It is therefore here proposed, for the sake of a modern approach to city planning and zoning, that since a ratio of two-thirds to one-third is a fair probable proportion of apartments to houses, we relinquish our personal predilections in favor of a single-family house long enough to discuss what ideals of planning are *attainable*. In other words, we ask the advocates of the benefits of the single-family house, of whom the writer is one, as well as that important group of realtors whose commercial interests are involved, to *stand by* while we throw a picture on the screen, which, to be sure, may lack some of the romantic aspects of home building, but may compensate by improving the prospects of a large and growing proportion of our city dwellers. In short, we propose to apply the useful arts of City Planning and Zoning; the economics of the use of land and of public facilities; the modern building technique; and some imagination freed for the moment from the complications of inherited custom and the restrictions of the patchwork building code, for a basic organization of the physical layout of the City.

(*Continued on page 222*)



So-called *Cul de Sac* groups of houses were built at Sunnyside Gardens, L. I., running through from street to street, but facing toward the restricted part of the community

In these groups there are single and multifamily houses of varying sizes. They have been popular as dwellings purchased and individually owned; and the privacy and freedom from the noise of the street has made the interior units even more sought after than similar houses with street frontages. Community garage in separate plot

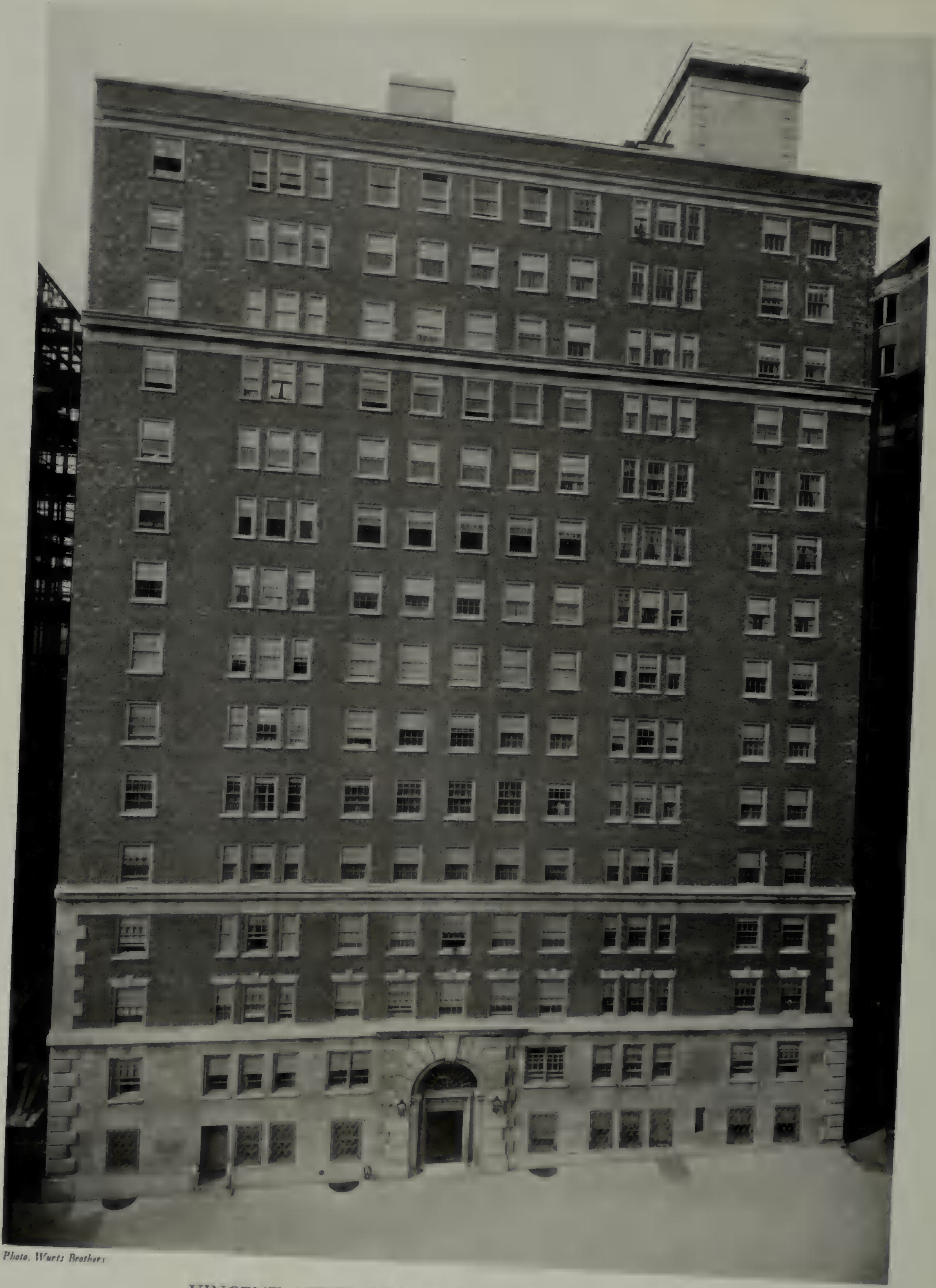


Photo. Wurts Brothers

VINCENT ASTOR APARTMENTS, NEW YORK CITY
CHARLES A. PLATT, ARCHITECT

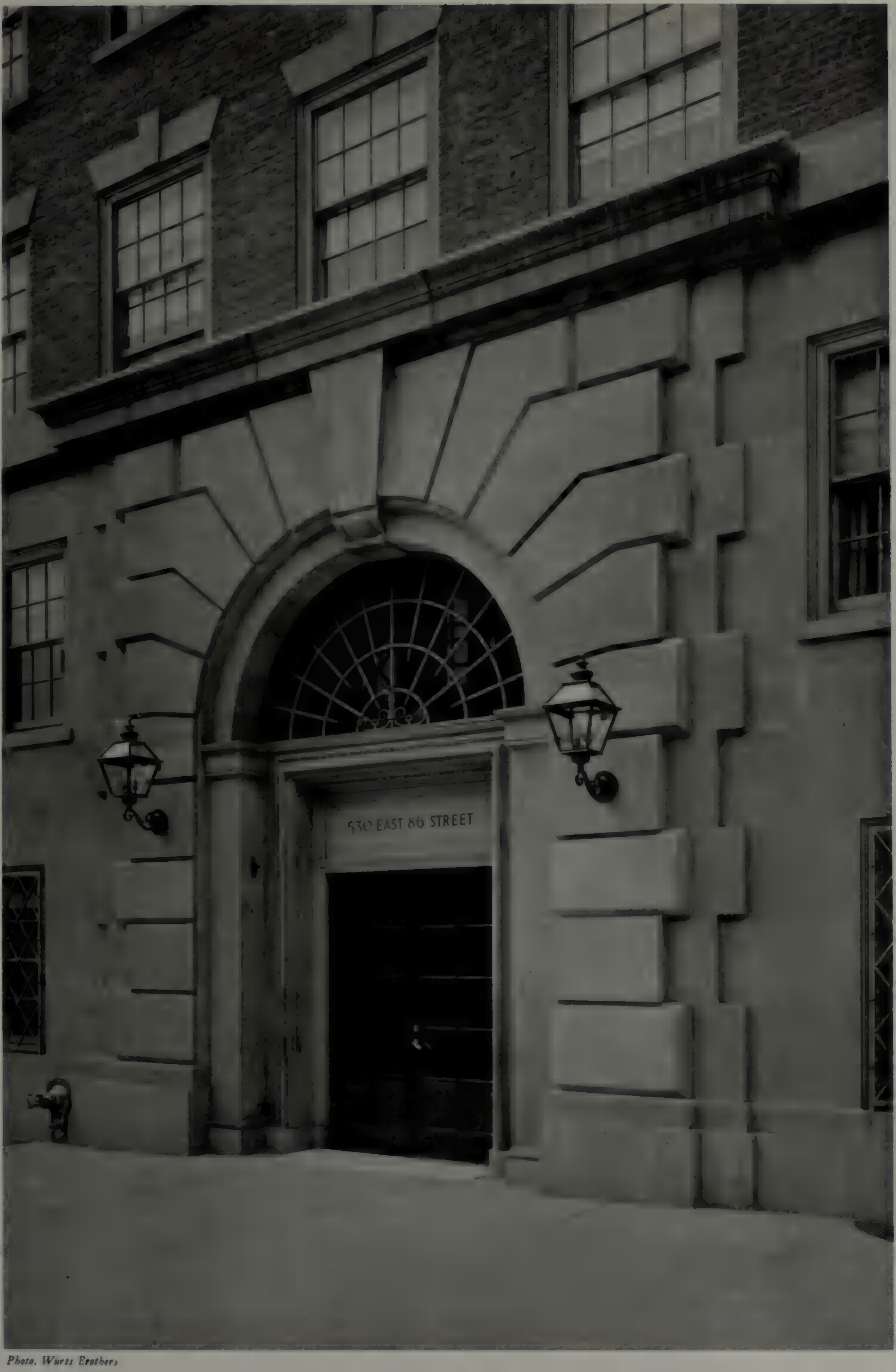


Photo. Wurts Brothers

ENTRANCE DETAIL

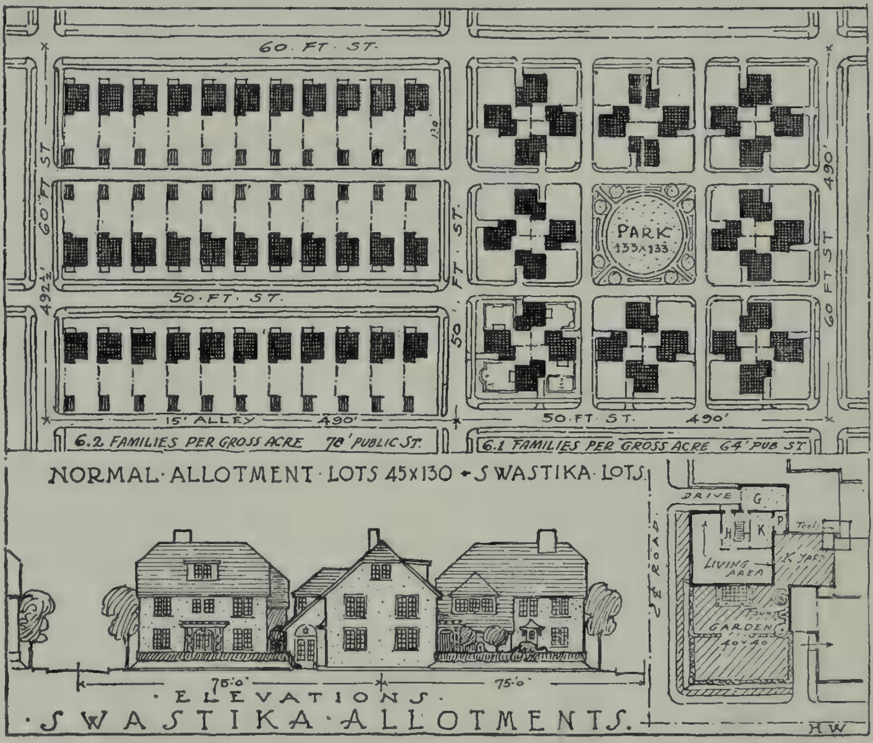
VINCENT ASTOR APARTMENTS, NEW YORK CITY

CHARLES A. PLATT, ARCHITECT

ATTAINABLE IDEALS

(Continued from page 219)

It is a simple matter to pass on from these easily demonstrable improvements in individual or group planning to an ideal city in which every part takes its place in an orderly and efficient manner; and even as a mental exercise, such flights of fancy have their value in suggesting an eventual goal. However, with individual interests in land ownership, it behooves us to look first to the more readily attainable ideals to be gained in the group or block unit.



SWASTIKA HOUSE PLAN

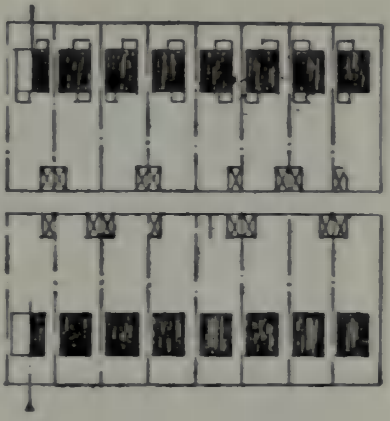
Contrasted with normal detached houses in rows—note gain for eight units sufficient to set aside one square out of nine as open playground.

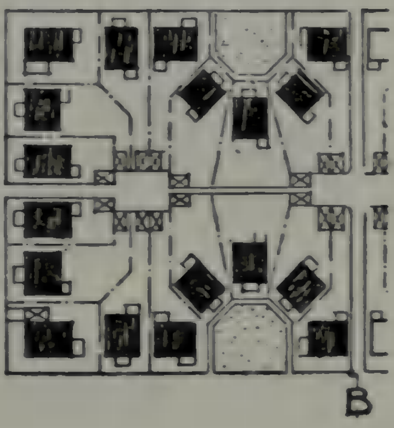
This simple Swastika arrangement, suggested by the author in the *A. I. A. Journal*, gains full use of this open area. By a more elaborate road plan it provides access to individual garages which might be alternately solved by neighborhood grouping of these facilities.

We may begin with the normal single-family freestanding house, which although it demands an extravagant land area—50-foot lots, five families per acre, or 8,300 square feet—is yet an offender against the fundamental principle of mutual non-interference. Ranged in soldier-like rows immediately exposed to the unpleasant noises and the confusion of the street, it enjoys the close proximity of neighboring windows and radio programs, while its open space, though large in quantity, is poor in quality, and ill-disposed with relation to the living area of the house.

Intermediate variations which do not go as far afield as the Swastika Scheme may be devised in which a given number of "soldier-course" houses, in blocks of 250 to 300 feet deep (a standard found in many western cities), may be slightly rearranged in any individual lot basis and yet gain the following advantages:

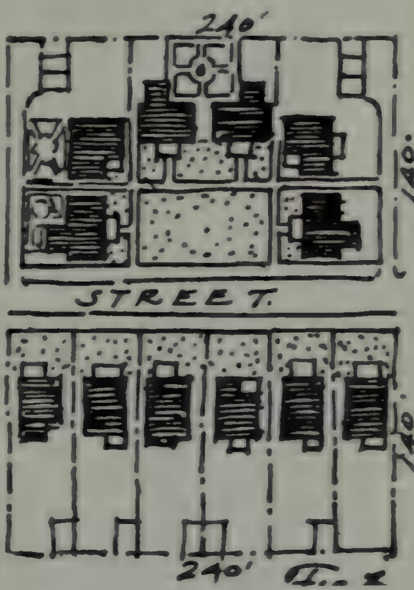
(a) Broader fronts for a fair proportion of lots, permitting variety in house plan.
(b) Use of end street as well as side street frontage, improving the usual ragged appearance of cross streets looking into rear yards and dismal alleys.
(c) Grouping of garages located either on or adjoining individually owned lots.
(d) Opening up side outlook and reducing interference of adjoining windows and services.



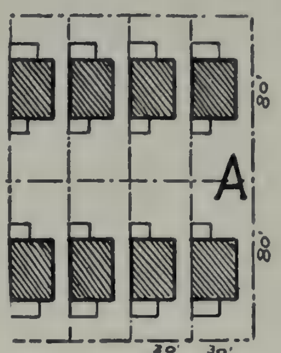


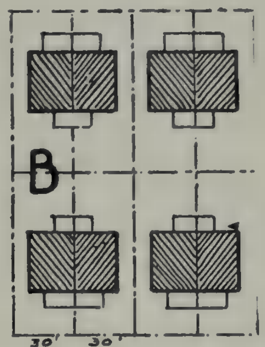
The result of grouping for mutual open space and non-interference is demonstrated by the delightful group of six houses at St. Martins, Philadelphia, designed by Edmund Gilchrist, Architect

Houses placed in soldier-course relation on 40-foot lots are contrasted with this group. The provision of garage sites on the premises is not made in the actual development at St. Martins, but shown to illustrate possibilities of the plan

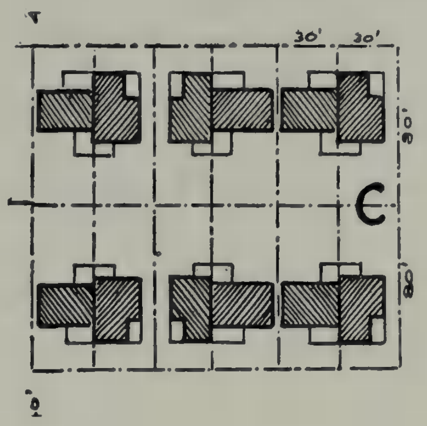


HOUSES AT ST. MARTINS
PHILADELPHIA
EDMUND GILCHRIST,
ARCHITECT

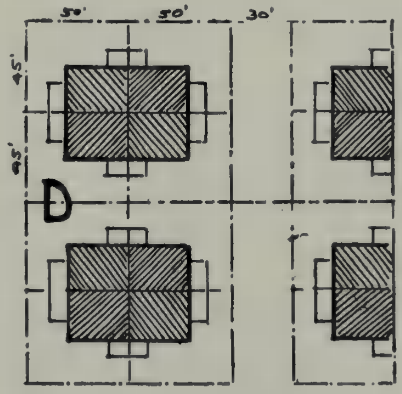




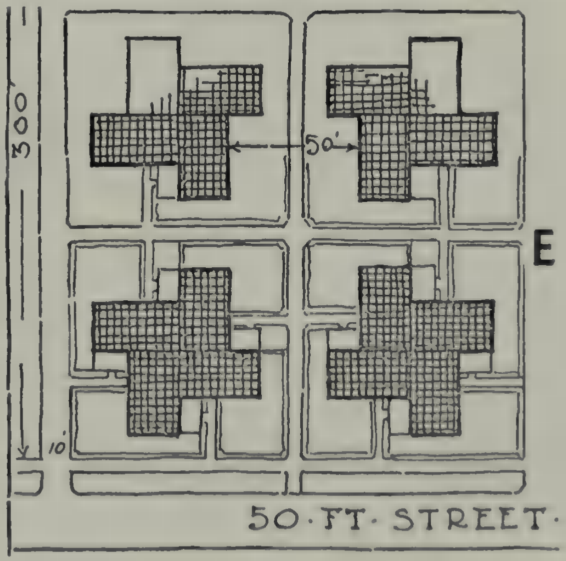
The first step in single house economy lies in the double or "semi-detached" single party-wall house. This enlarges or pools the side yard area. It at once encounters the difficulty of all forms of attached dwellings and apartments in the matter of noise passing through the party wall. Here we must look to the technical engineers for relief, since we have what constitutes a universal defect for all dwellings economically suitable to urban requirements



Once the party wall has been admitted, further savings in land area are attainable (C) with less mutual interference than (A) and yet affording exterior variations not only interesting but marking the individual ownership more readily than in the stereotyped (B) plan. This short group plan was the basis of the Shipping Board War Village and is being extensively employed in Washington, D. C., where a special zone district has been provided for such house



A grouping of two party walls in a four-family unit was first used at Essen, Germany, and later extensively by Architect Flagg in one of the War Villages, also in Philadelphia for some more expensive houses. It has the fault of eliminating all cross-draft



A better, though less efficient variant is to be found in the attached Swastika (E) made up of the same size houses as (D), slightly altered in shape. This scheme of plan for the double party-wall house requires half the amount of street and about two-thirds as much land (1,920 square feet) as the detached houses on 30-foot lots (2,400 square feet)

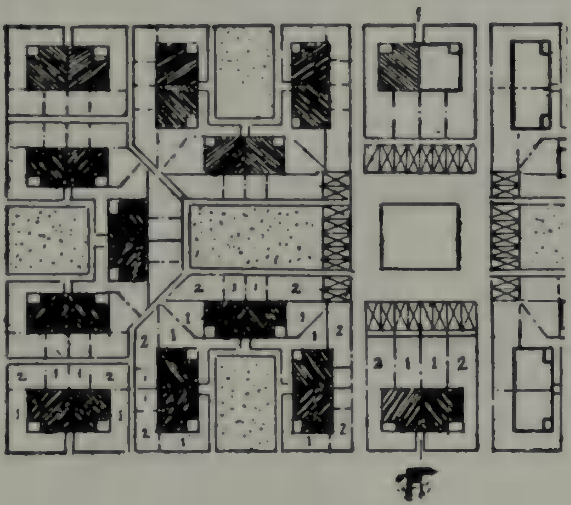
GROUPING OF
SINGLE-FAMILY HOUSES
AND TWO-STORY FLATS,
BRIDGEPORT, CONN.

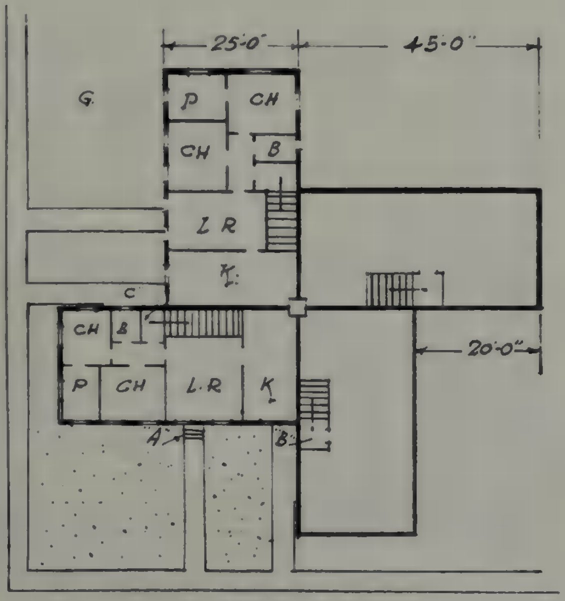
R. CLIPSTON STURGIS AND
A. H. HEPBURN, ARCHITECTS

ATTAINABLE IDEALS

Passing on to the multifamily house we have already shown the possibility of regrouping these so as to avoid all cross-vision interference as well as to provide access to individual clothes yard for each of the four families occupying the building. Here again a more radical departure may be suggested by means of the Swastika with the following advantages.

Although it enjoys the economies of a double party wall and a shingle heating stack for eight dwellings, two-thirds of the perimeter is exposed with unlimited outlook, light and air—only the stairs, storage room, and one side of the kitchen are thus affected by the party wall, while all living rooms are insulated from noise interference. Entrance to the second floor dwelling (B) is had along a wall in which the first story has unimportant high windows for a bath and one side of a corner bedroom. Under present forms of construction the relations between the first-floor tenant and his second-floor vertical neighbor are sometimes strained. This tension is obviated to some extent in this plan, since the second-floor dweller over first floor entering at A enters at C quite removed from any contact with A, while B entering nearby remains a friendly neighbor who does not annoy A with the reverberations of his particular radio outfit.

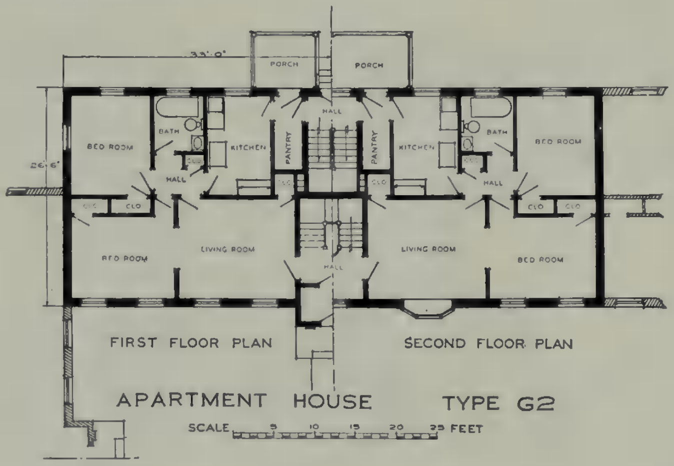




APARTMENT BUILDINGS AT BRIDGEPORT, CONN. FOR U. S. HOUSING CORPORATION

R. CLIPSTON STURGIS, ARCHITECT

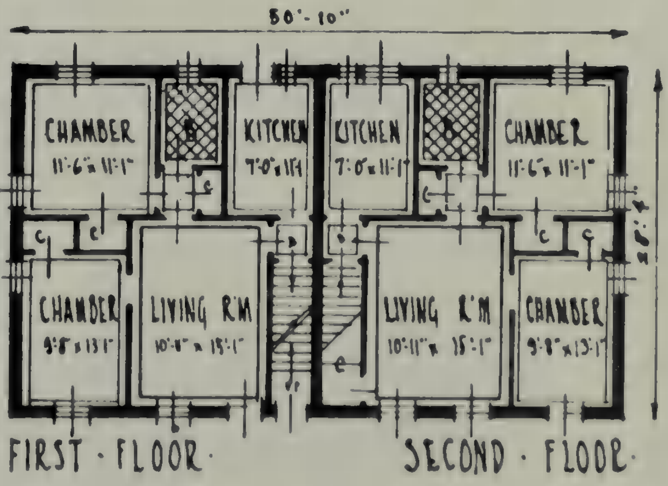
(Plan below)



ATTAINABLE IDEALS

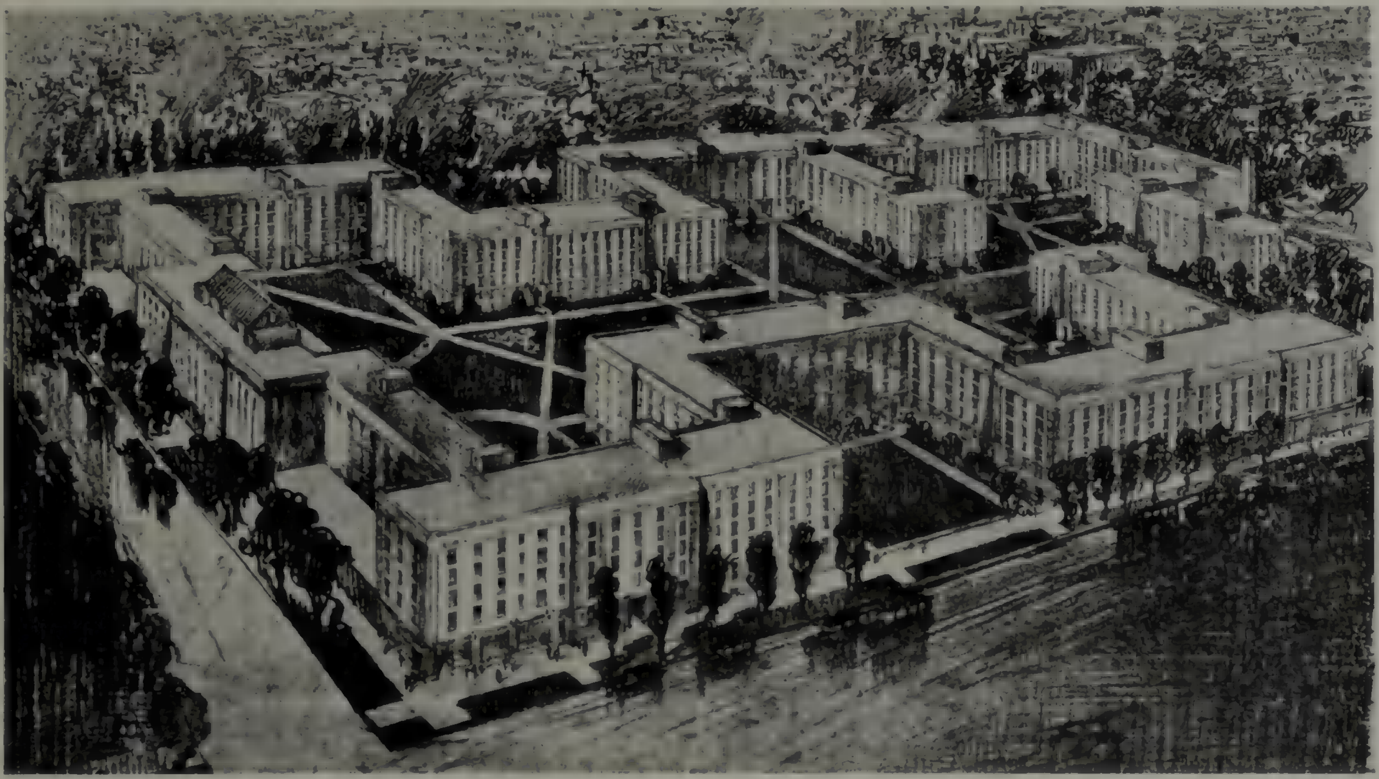
Passing on to the three-story flat, a type of dwelling resorted to in many large cities, we find the conditions aggravated by crowding of deeper building plans on narrow lots. The same readjustment of site relationship applies here as in the two-story building. In fact the only difference between these buildings in normal use is in the conversion of stair space occupied in the flat by two single-run individual stairs into a single double-run stair with landings. The improved Sunnyside Gardens flat with broad front provides two four room suites on each floor in a space 50 feet wide by 28 to 30 feet deep. In the three and four story apartments built in this same development, the plans are practically identical except for the rearrangement of stairs and substitution of dumb waiters for rear porch entrances.

A broad front plan based upon the same principles was used by the Shipping Board developments as a two-story flat, while at Bridgeport, the U. S. Housing Corp. adopted a similar plan for three-story flats built in recessed courts and other grouping which afforded a non-interference open relation at a land area of about 900 square feet per family.



APARTMENTS FOR CITY HOUSING CORPORATION, "SUNNYSIDE," LONG ISLAND

CLARENCE S. STEIN, ARCHITECT



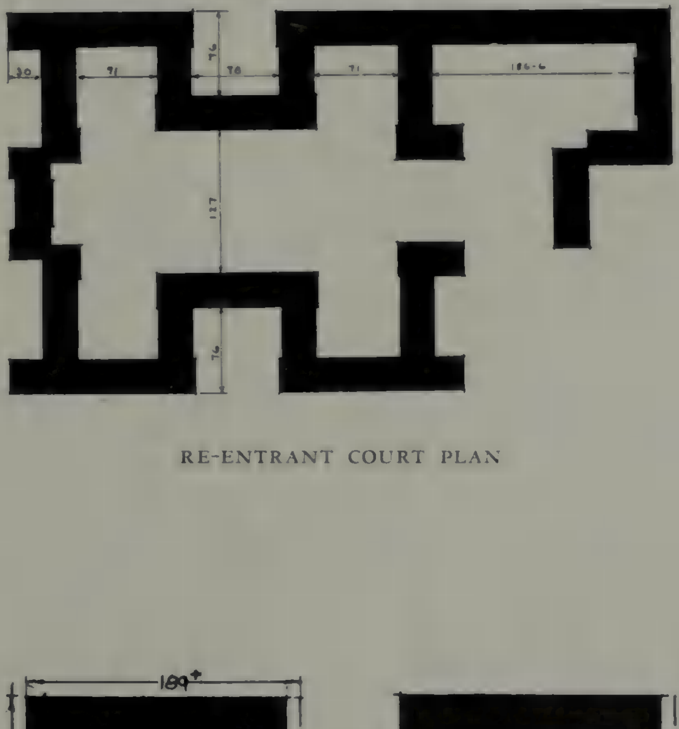
MICHIGAN BOULEVARD GARDENS, CHICAGO

E. H. KLABER AND E. A. GRUNSFELD, ARCHITECTS

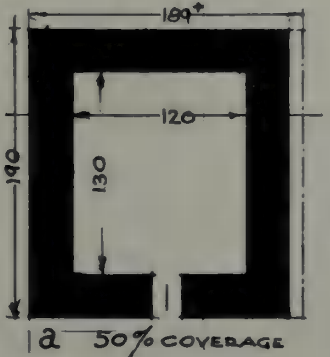
Characteristics of Apartment Design

The foregoing multifamily types are at best the least desirable forms of habitation. If the drift is definitely away from the single dwelling it is also fortunately toward the larger types of apartment. Such are, however, a mere extension of the flat, either vertically or in groups of a size necessary for efficient service.

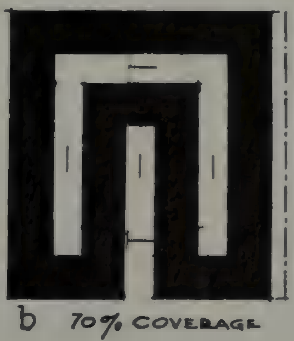
The same principles of plan should apply as in the flat. Apartments should be two rooms deep extending laterally from each stair or elevator unit. The more simply and directly this is accomplished the more efficient the building is likely to be. As noted a year ago, the best results are obtained from a perimeter building with ample courtyard. (Filling in the court with more building complicates the design and usually adds more building cost than is saved in land cost. If blocks are somewhat deeper the perimeter may be extended by means of re-entrant courts which, if turned toward the main thoroughfare, will reduce the number of rooms facing directly on the noisy street.)



RE-ENTRANT COURT PLAN



a 50% COVERAGE



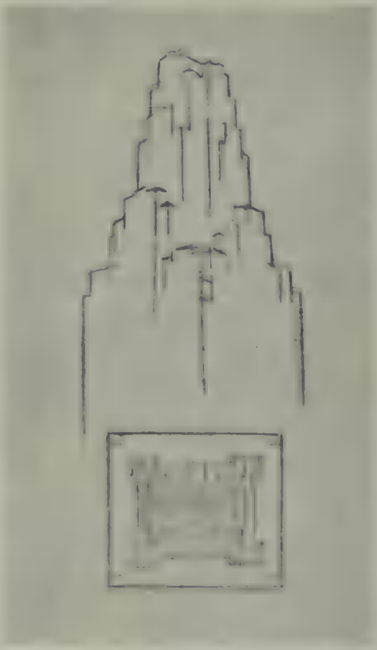
b 70% COVERAGE

Placing the Apartment

Since from one third to one half our city population will, according to present trends, see apartments of one kind or another, it is proper to consider how we can provide the most suitable conditions for their accommodation. While the apartment dweller probably likes noise no more than his housekeeping friend, he requires a prominent and convenient location and his larger united drain upon utility services suggests that apartment blocks shall border the main avenues and surround the unit cells of the city, just as the individual apartment building surrounds the perimeter of its block. Here the principle again acts to afford so large a capacity in this perimeter that there is no need of continuing apartments in the interior of the unit cell, in fact a standard of apartments only one block deep on each side of broad avenues not only corresponds roughly with what is taking place, but also gives an ample capacity to the neighborhood for all ordinary requirements. This plan has the advantage that no building more than two stories in height need be built without an outlook, either over a broad avenue or an adjoining block of low structures. The principle is identical with the arrangement shown on page 233. In a city unit cell, one-quarter mile each way, bounded by broad avenues, the first tier of blocks 200 feet deep will furnish 7,400 feet of frontage or 814,000 sq. feet of building area. The remainder or the block, 645 feet square, even if divided into three blocks will furnish only 3,870 feet of frontage, or 351,000 feet of building area. What a pity then to crowd this central core full of tall buildings, adding less than 40% to the available building area and reducing the desirability of both the perimeter and the center properties. Better to extend more apartment locations along the main avenues, where utilities and convenience exist.

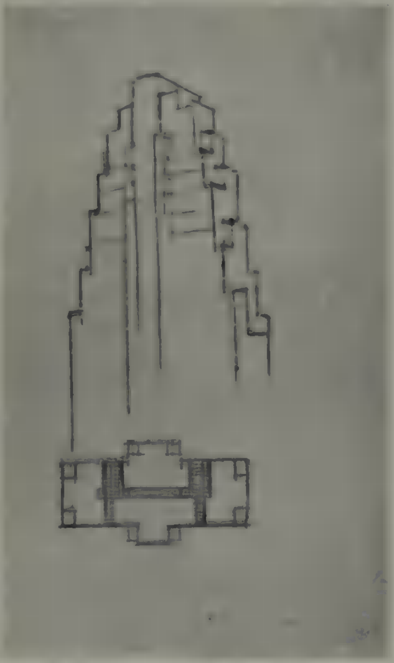
Set Back Skylines

Before getting into the design of streets suitable for apartments, it may be well to give some consideration to the *design and efficiency of elevator apartments*. The fact that New York, with its excessive land prices, has set the standards of apartment house design, has lead to a misconception that New York apartments are efficiently planned. But where a city does provide sufficient and proper sites for apartment building to prevent land monopolies in a few desirable locations, vast improvements may be made in their planning and setting. Excessively high land values tend to cover inefficiencies of building cost. Buildings are forced up into the full limits of a too generous zone "envelope". Although this may bring about a picturesque interest in the favored upper stories, the set-back building, which has worked fairly well for loft buildings and hotels, is neither favorable nor logical for dwelling type apartments.



Too generous an "envelope." A dark unusable mass inside

The small number of efficient and desirable upper suites does not compensate for the large amount of dead space which supports the upper pyramid. A well-planned apartment hotel on a large corner lot may warrant a square plan in which only about 45% of the area is available for daylighted rooms. The remaining area may be devoted to artificially lighted bath rooms, serving pantries, foyers, halls and elevators. But a slice taken out of the middle of such a structure will contain nearly as much area suitable for family apartments.



Equivalent to a slice through the building shown opposite. Appropriate for apartments

Where land values will permit (as would be the case in cities making ample provisions for apartment sites) the application of the set-back could be made to the lateral spread of efficient two-room deep apartment buildings. Just to test the adaptability of this principle, the accompanying sketch has been made of a sixteen-story apartment with two elevator units serving 36 apartments or 170 rooms each.

The practicability of the service elements of the design is not important in this connection; the plan is made primarily to show the possibility of receding set-backs securing open balconies for two out of every three lateral apartments above the fourth floor. These buildings particularly adapted to the corner locations in the following study of an integrated city plan suggest the possibilities of design under conditions and land values favorable to efficient planning and grouping of such buildings.

But cities are demanding other changes besides improvements in dwellings. *Through traffic* demands wide arteries in which it can flow uninterrupted. We propose, then, a new type of wide artery for apartment frontage particularly designed to help traffic flow and yet improve the comfort and convenience of its border properties. The city of unit cells surrounded by broad avenues, is detailed elsewhere. By a redistribution of street space, just as we have redistributed open lot space, the wasted width and pavements of minor inner-cell streets is transferred to help provide amply wide perimeter or arterial streets. This process alone provides more than half the extra space needed to make half mile (3,000-foot) arteries (on which all our elevator apartments are to be located) 150 feet wide with 350 diameter circles at their intersections. These street areas are used as follows. The 150-foot avenue has a 44-foot center uninterrupted traffic-way bordered by an 18-foot grass strip with a double avenue of trees and hedge lines at curbs (such uninterrupted four lane streets with proper intersections and entrance valves will carry more vehicles per hour than the most crowded streets in the world today).

The remaining 35 feet on each side are used for a 25-foot wide local access street and a 10-foot walk way. Through traffic cannot proceed more than 1,200 feet along these side streets and therefore will avoid them, reducing noise and danger to a minimum. The center traffic way is to be depressed about 3 feet which, with the hedges and trees, and a distance of at least 60 feet to the nearest building, will eliminate much of the noise and conscious view of the fast traffic. It will also permit relatively low overpass footways.

The 350-foot intersection circles provide space for elimination of grade crossings with the same *cushion* of side roadway as in the avenue. Thus the tall buildings, (6 stories) on the avenue and the extra tall buildings at the traffic circles enjoy the effect of broad open spaces on the street side with a minimum of the present noises from such arteries.

In order to provide for grade elimination at the intermediate quarter-mile 80-foot street crossings, the avenues are to be carried on a level generally 8 to 10 feet higher than the natural surface and the general grade of the 80-foot streets and the streets in the unit cell interior. Apartment frontages are therefore 8 to 10 feet higher allowing the court yards and space toward the interior of the unit to be converted into garages, the roof of which provides play space for nursery schools, tennis courts, and the like. Parking capacity for visitors' vehicles is provided for in special spaces behind the curb line.

Typical Apartment Block Design

Three types of multifamily perimeter blocks, interchangeable in shape and size, are shown on the detailed unit cell plan on the double page spread.

(1) One hundred and thirty dwellings in thirty-two 2-story four-family flats grouped so as to have individual yards for every family, two garage courts and three playgrounds. These are shown next to the 80-foot delivery highways and so arranged that except for two buildings set 15 feet back, the end-rooms only of four flats out of twelve are exposed toward the traffic street.

(2) One hundred and thirty-two flats in three-story six-family buildings, based on Bridgeport. These taller buildings are less crowded and provide space between for subgrade garage units and nursery school yard.

(3) Six-story twelve-family elevator apartments: 202 apartments with re-entrant courts and forty 3-story apartments off the inner street.

Finally, the 350-foot traffic circles have at each corner one sixteen-story building of seventy-six apartments and two 6-story with twelve apartments each, or 400 apartments for the four corners. Thus the quarter-mile unit cell—*not as shown to illustrate all types*—but with two-story flats on the 80-foot streets and six-story block on the avenues, would have 356 flats and 500 apartments in the perimeter blocks besides three corners of 4,800 square feet each devoted to churches and clubs on the avenues, and stores at the intersection of the 80-foot traffic streets.

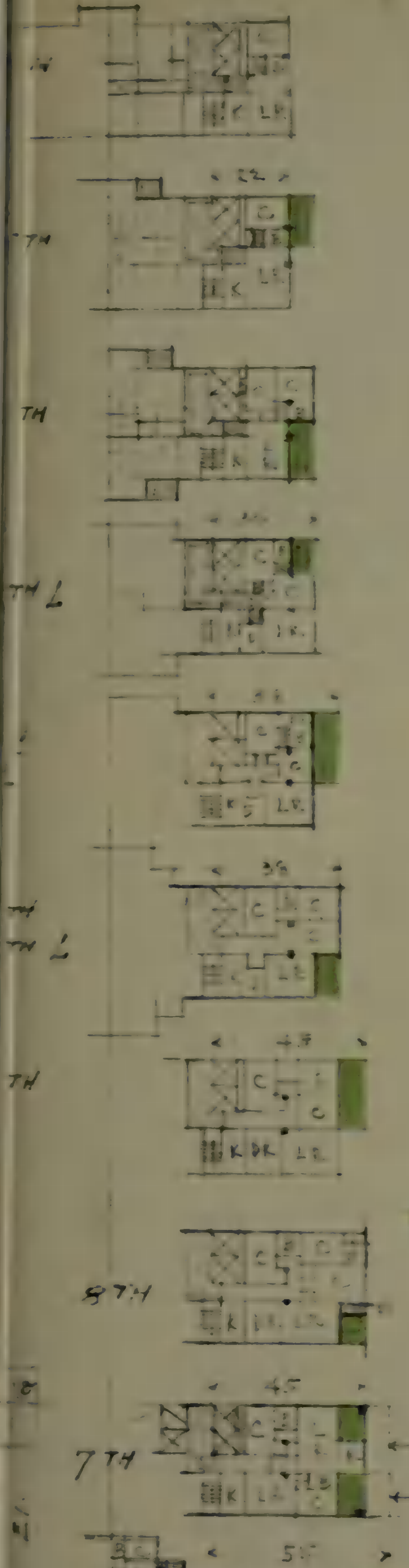
The central space may be occupied with 116 single-family houses making a total of 972 families, or may form a fifteen-acre park convenient to 856 families in the perimeter blocks; or to compensate for the park the four groups of three-story flats in each six-story block if raised to six stories, would provide 182 more apartments or 1,038 for the unit. The unit as drawn is 1,500 feet square, instead of a quarter mile (1,320 feet) and contains 51½ acres, which is slightly over nineteen families per acre besides including space for fifteen acres of park as well as stores, clubs, churches, garages, primary schools and playgrounds.

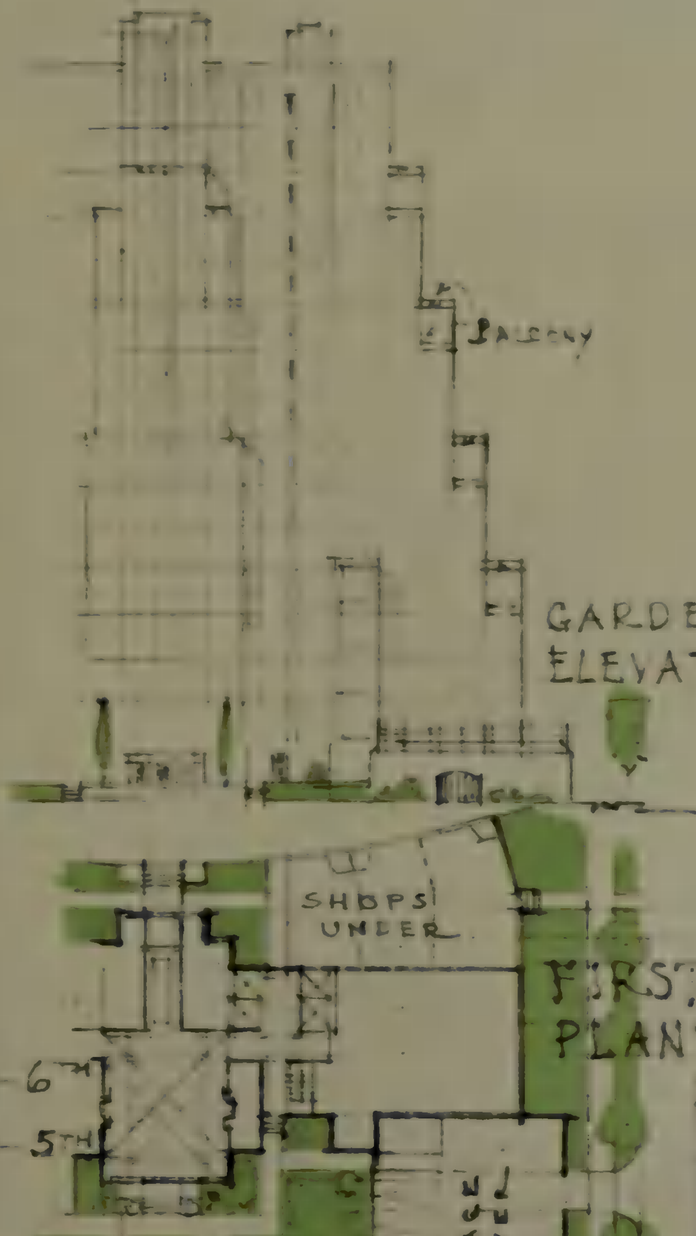
THE RESIDENTIAL CITY

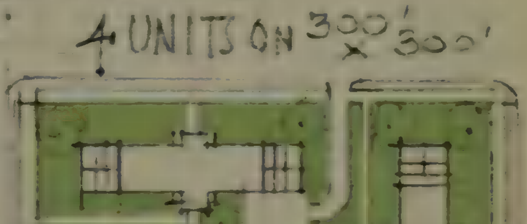
The purpose of carrying on from this point is not to offer a developed method of complete City Planning, but rather to test the adequacy of the principles indicated in the foregoing study for the larger living areas of the future city. Although such an all-residential unit might conceivably be possible as an actual portion of a larger regional city, its purpose is diagrammatic only. A 3-mile square is divided each way into five 3,000-foot squares or 25 units of types here illustrated bounded by 150-foot avenues. Five units are devoted, one to a central business area and four to parks, one each at the corners. These parks with the local park areas occupy 25.7% of the area of the city; central business 4%; leaving 67% or 6.03 square miles of residential property. This is approximately equal to one half the area occupied for residential purposes in two or three known cities of 400,000 to 500,000 populations, though those cities are spread out over a total thirty to forty square miles.

"BALCONIES"

A typical 16-story apartment, free of all light-courts and provided with ample balconies, as it might be developed facing one of the large circles shown on the next page.

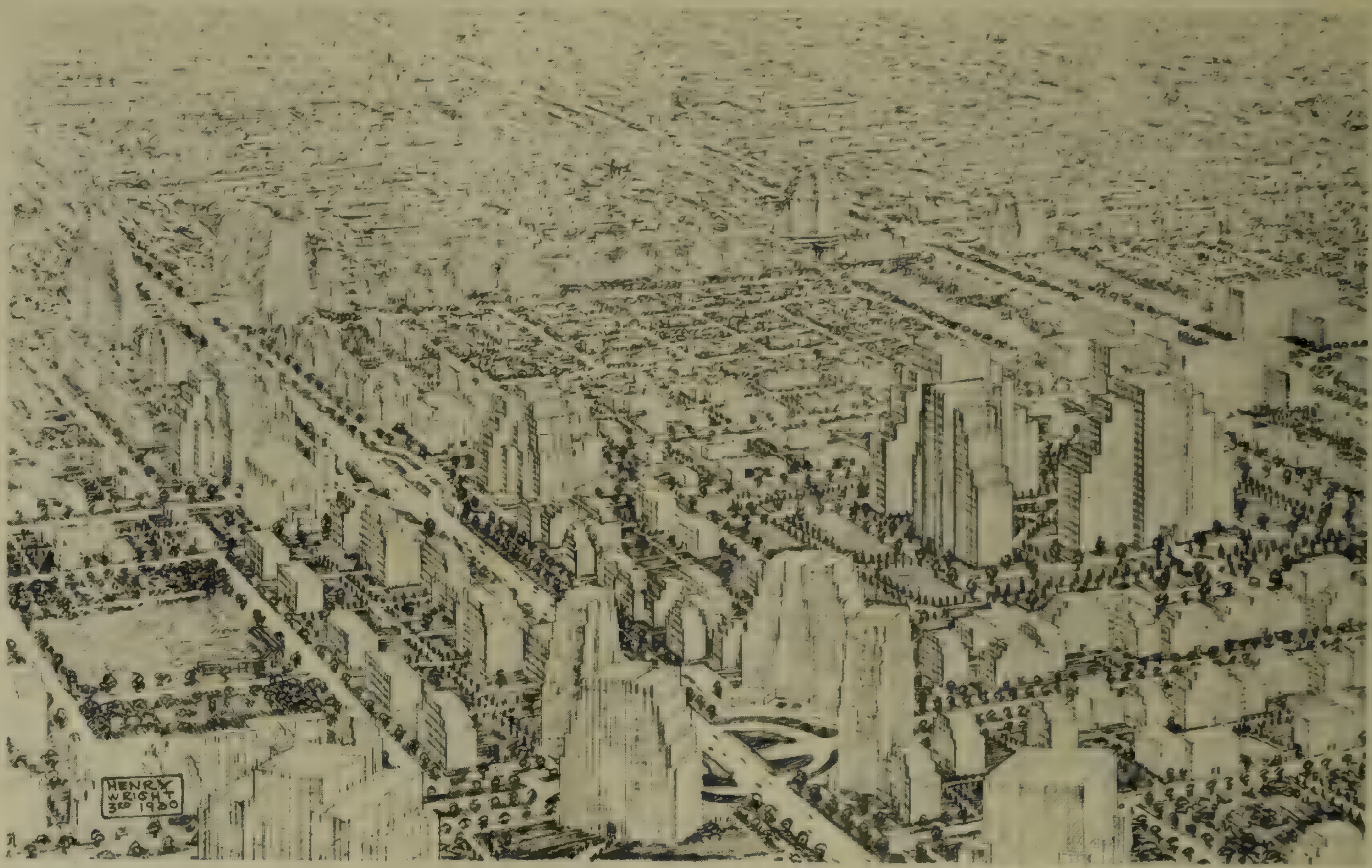


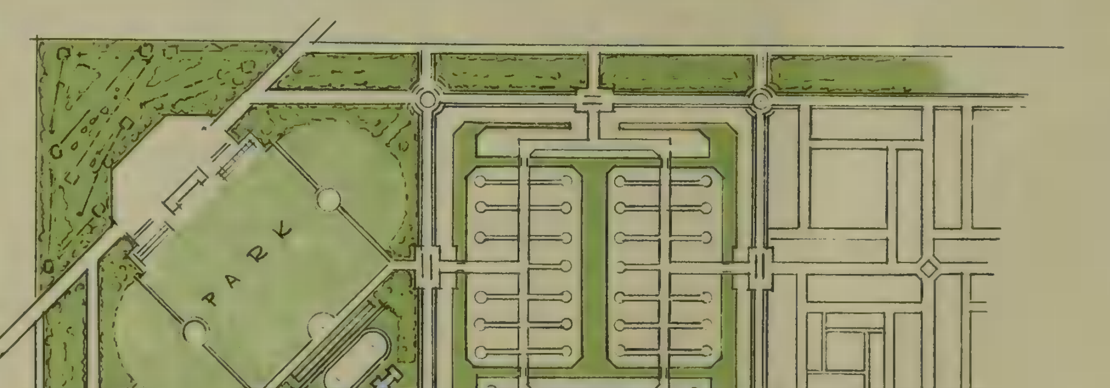




The Architectural Record

A
ESIDENTIAL
CITY



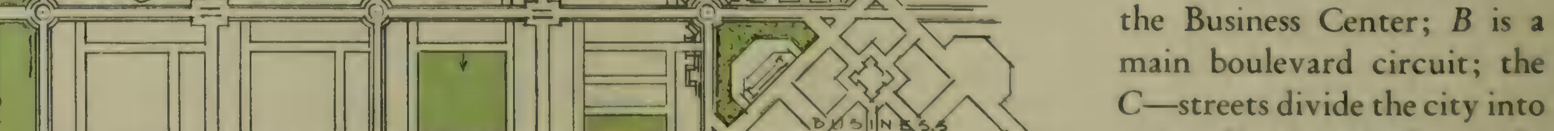


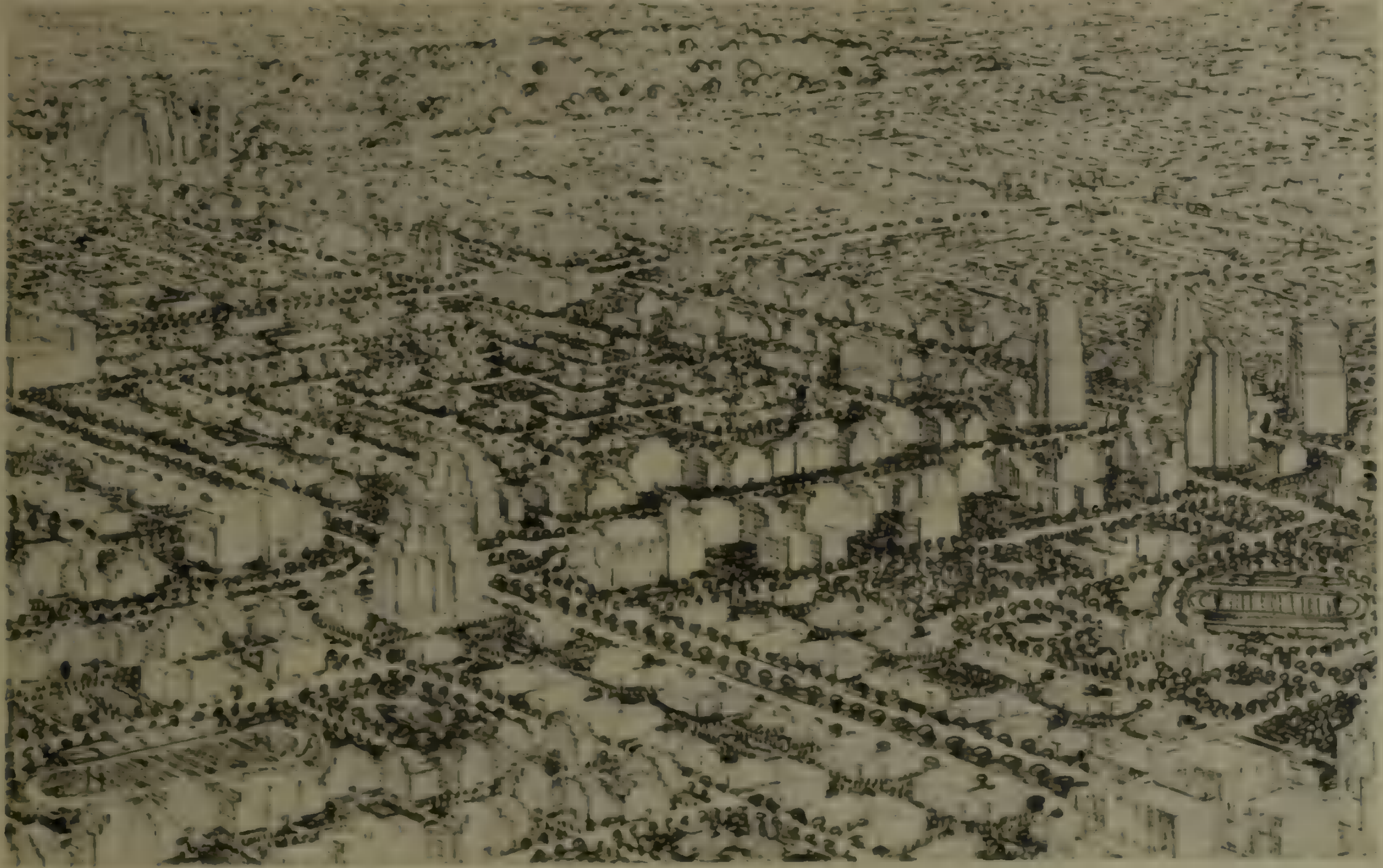
A reorganization of forms and areas of streets and buildings as now given, so as to meet an attainable ideal of universally open and non-interfering dwelling structures, using the types shown on previous pages in detail.

Above: Air view.

Left: One quarter of a three-mile square city. The city as a whole is shown on page 234. *A*—streets radiate from the Business Center; *B* is a main boulevard circuit; the *C*—streets divide the city into unit cells of 3000 feet each.

Right: One quarter of a typical 3000-foot unit cell.

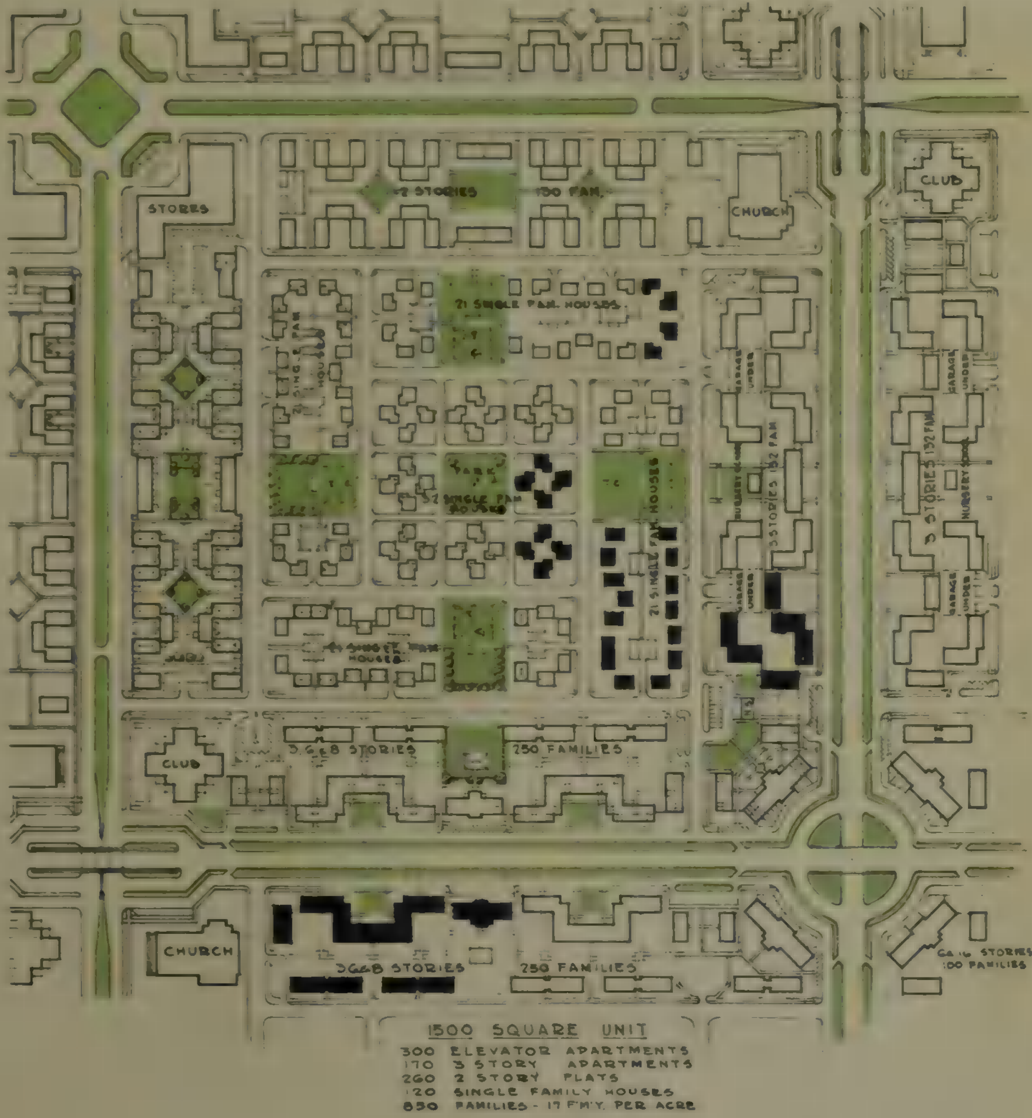


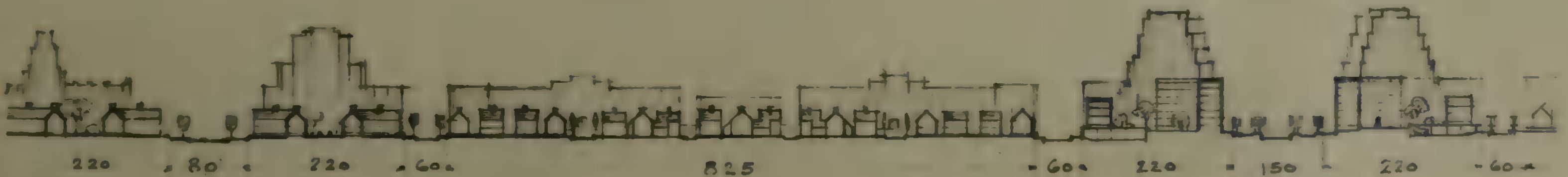


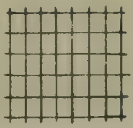
AS AN INTEGRATED ORGANIZATION

In this organization a rational balance is attained between public utilities and private land use controlled by accredited constructive limitations. This permits an elastic unit adjustment to the demands of special requirements imaginatively developed.

The complete three-mile city is composed of eight interior and twelve suburban residential unit cells. At right is a detail showing one quarter of such a unit cell, made up of all the types of housing shown on previous pages.

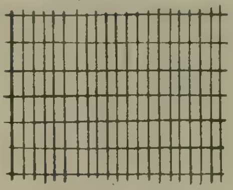


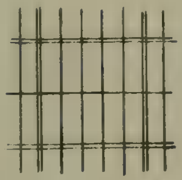




STREET SYSTEMS

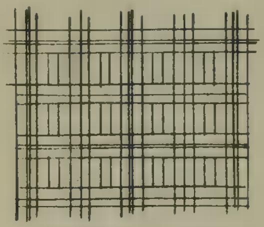
MOST WASTEFUL SHORT BLOCKS.



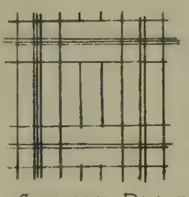


DETAIL GRIDIRON

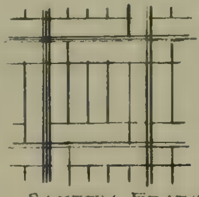
BETTER GRIDIRON SYSTEM SPECIAL STREET EMPHASIZED.



SCOTCH PLAID STREET SYSTEM



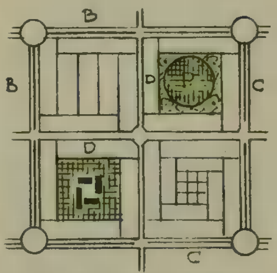
SCOTCH PLAID DETAIL



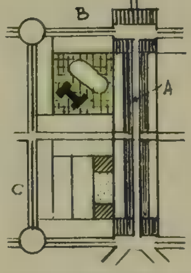
SAFETY FEATURE INTRODUCED

SAFETY STREET SYSTEMS

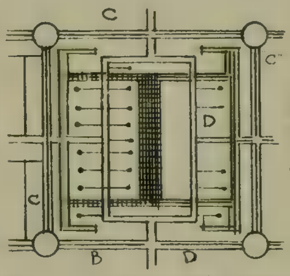
NOTE: Practically the same street area has been maintained thru out, the savings in the final scheme make possible an increase of width of "C" from 80' to 120'.



3,000 FT. SQ. UNIT
4 TYPES SAFETY CELLS.

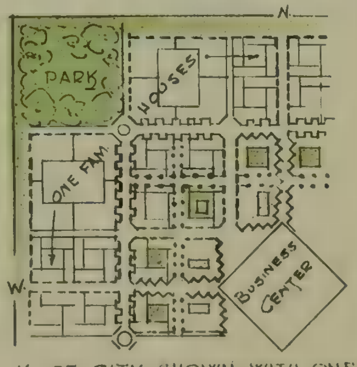


BUSINESS UNIT "A" ST.
SCHOOL & PARKING CELLS.

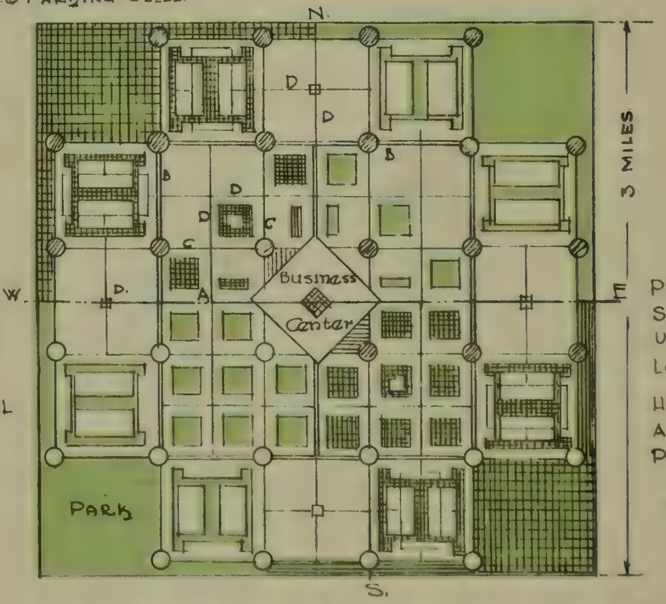


"RADBURN" INNER BLOCK

ENTIRE RESIDENTIAL AREA MADE UP OF ONE OR ANOTHER OF THESE UNITS.



¼ OF CITY SHOWN WITH ONE FAMILY HOUSES IN CENTRAL AREA SCHEME "X"

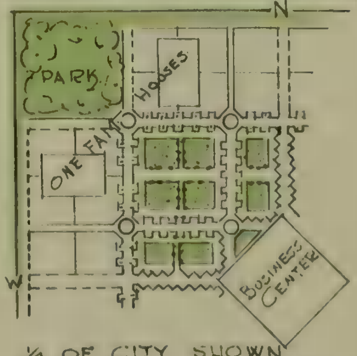


PLAN OF 3-MILE CITY SHOWING OPEN SPACES UPPER HALF AS SCHEME "X" LOWER HALF AS SCHEME "Y"

HOUSES WITHIN BLV'D "B" ADDING 50 ACRES OF LOCAL PARKS IN EACH QUARTER.

250,000 POPULATION

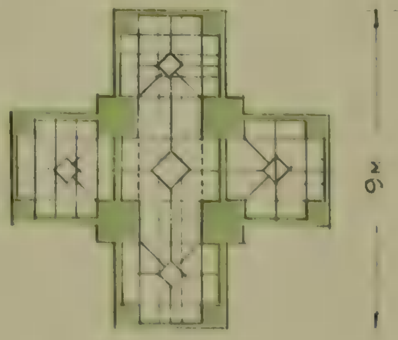
ALL SHADED AREAS PARKS OR OPEN SPACES



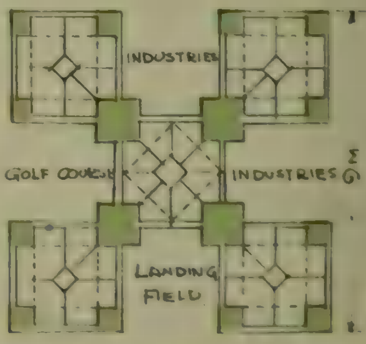
¼ OF CITY SHOWN WITHOUT ONE FAMILY HOUSES IN CENTRAL AREA SCHEME "Y"

INDEX

⊕ 16 story Corners
ᴗᴗ All 6 story Blocks.
ᴗᴗ 6 and 3 story blocks
〰 6 story & stores
------ 3 story block.
...... 2 story flats



MALTESE CROSS

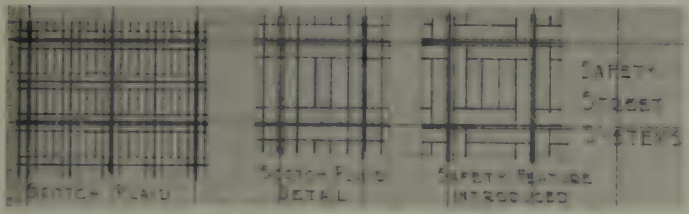


CHECKER BOARD

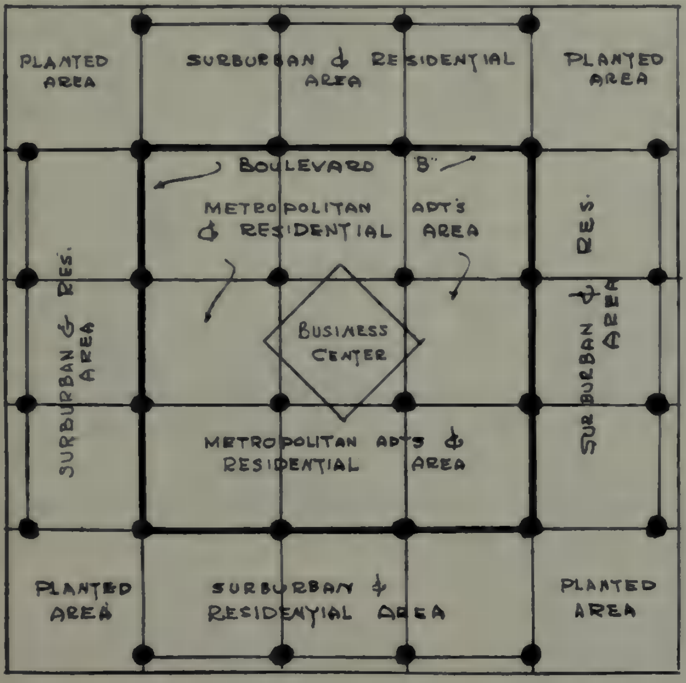
ALTERNATE SCHEMES FOR 1,250,000 POP.
100% SUNLIGHT BUILDINGS ¾ MILE MAXIMUM DISTANCE TO LARGE OPEN AREAS. 20% OPEN AREA IN EACH UNIT.

An Adequate Safety Street Plan

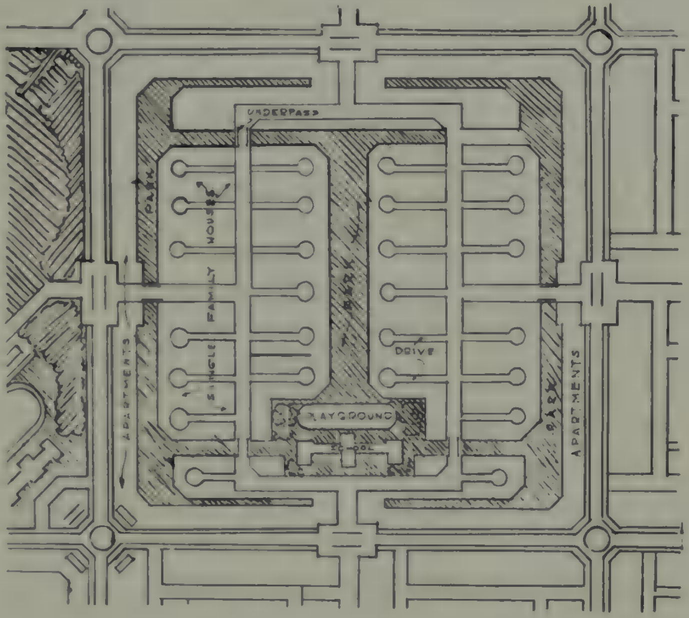
The detailed street plan is arrived at just as the previous improved building group plans were. Street space in its customary wasteful gridiron form is first diversified in the Scotch Plaid form, emphasizing through streets; and then altered to the safety plan by which the unit cells are isolated from the danger of through traffic. This simple evolution by reason of its longer blocks and fewer intersections saves sufficient internal street area to widen every alternate quarter mile avenue from 80 feet to 120 feet. The one-half mile unit is then enlarged for convenience from 2,640 feet to 3,000 feet and a slightly greater area devoted to making the half-mile arteries 150 feet wide as previously shown.



Details on this and the next page are lifted from page 234, which they help to explain



The entire residential area then consists of 12 outer squares beyond the main boulevard circuit B.B. Four of these squares are treated with the standard safety street form, but occupied largely by row and detached single-family houses. Eight squares are arranged for detached dwellings in the form of cul-de-sac lanes with central block parks on the principle of the *Radburn, New Jersey*, plan.



Within the circuit boulevard, B, are eight more unit cells, surrounding the business center. Of these the corner four are treated as shown on page 232, while the others are varied to provide local business streets (A, A, on the same page), and contain eight 15-acre school sites and eight 4-acre parking blocks. (In each of the apartment house blocks for 3 and 6-story buildings, space is provided for parking in addition to the normal street space. Court areas are to be occupied partly by green lawns and partly by paved areas over garage space. Each block is also provided with a nursery school and ample play space for small children. Each school serves 230 to 250 families living within the block; this is an ideal size for an efficient nursery school.)

If we take the North West section of the entire City, then, and show it as on page 232, the distribution of apartments and houses in it may be analyzed as shown at the right.

(This scheme is shown on page 234 as "Scheme X.") The A street here has one depth only of re-entrant 6-story apartment groups, set back above a frontage of stores. All apartments of 6-stories or more—all the large ones, in other words—are confined to the four A streets, and the two sides of the circuit boulevard, B. The 3-story flats are on the C avenues, and the 2-story flats are on the D quarter-mile, 80-foot streets in the central area only. The high buildings surround the area of low ones.

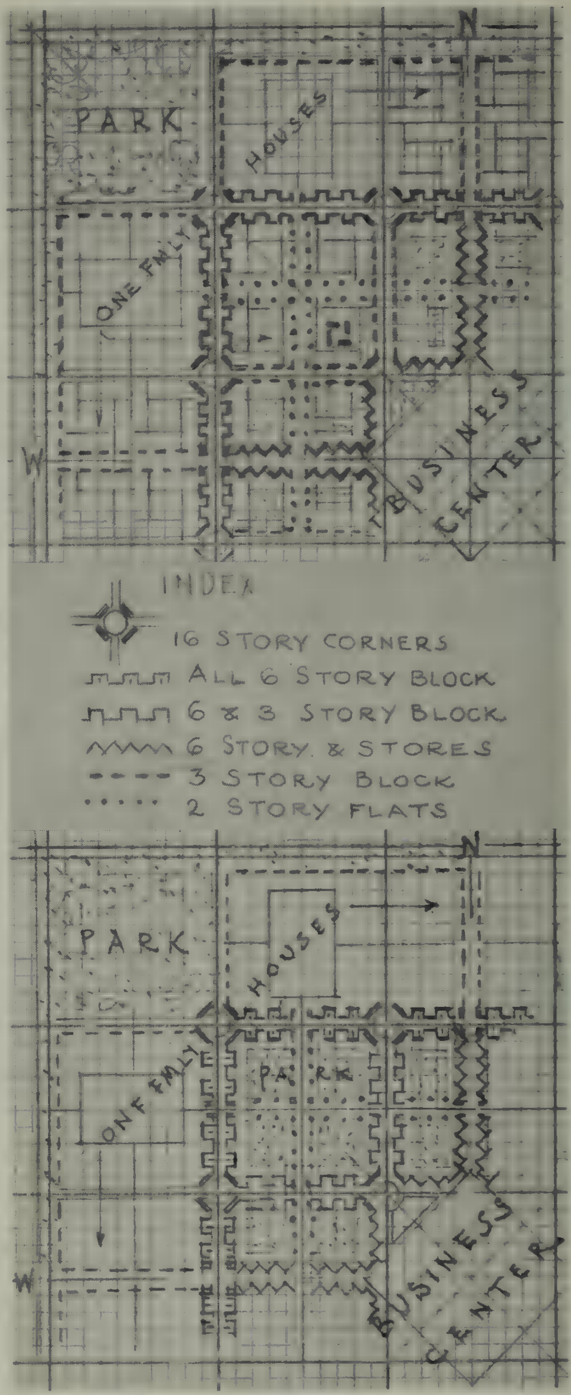
This plan houses 250,000 people in

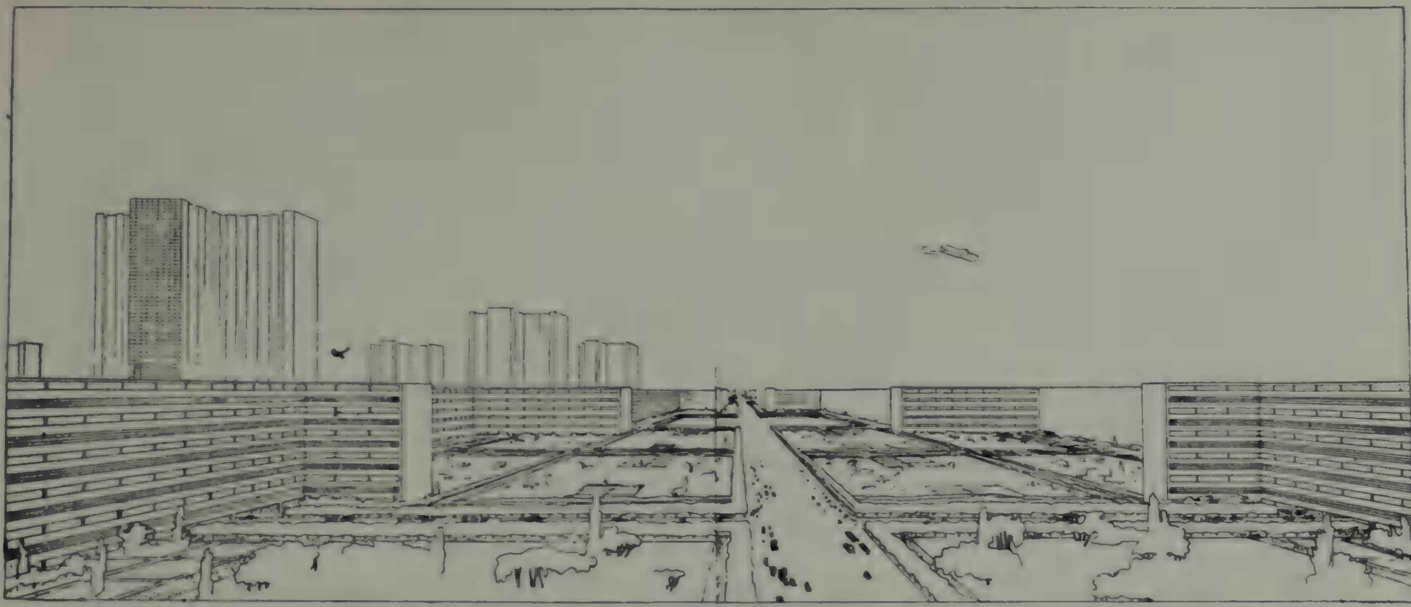
32% one-family houses
33% two- and three-story flats
35% elevator apartments,

covering altogether only 12% of the gross area of the city counting streets, or 17.5% of the net area within the block lines.

An alternate plan, Y, disposes differently of the central area within the boulevard B. It eliminates all the single-family houses within this area, which in Plan X occupied the central 15-acre space in each unit cell, with 116 houses in each unit. It requires the expansion of only a few 3-story flats to 6-story apartments to retain the same population, while every 1500-foot unit cell is provided with a local 15-acre park. This plan still leaves over 30% of the houses, in the city as a whole, single-family ones: a ratio which now holds for our twenty-two largest cities.

Any number of variations could be made increasing or decreasing the potential population or changing the proportion of apartments and houses. Three additional stories added to the three- and six-story apartments within the central district for which there is ample open street and park space would increase the population by 60,000 counting as before 3½ persons to each apartment as compared with 4½ for each flat and 5 for each single-family dwelling. The value of the count is merely to indicate the generous capacity of even this small three-mile area occupied by buildings covering an average of 17.6% of their sites and so arranged as to avoid all light courts and cross interference.

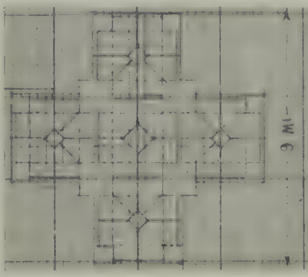


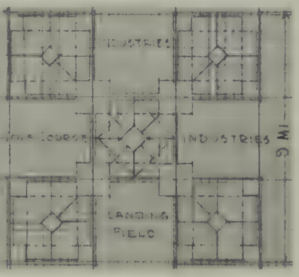


"THE CITY OF TOMORROW"
A SCHEME BY THE EUROPEAN ARCHITECT LE CORBUSIER
"It would require a revolution in our ideas of city building and land ownership"

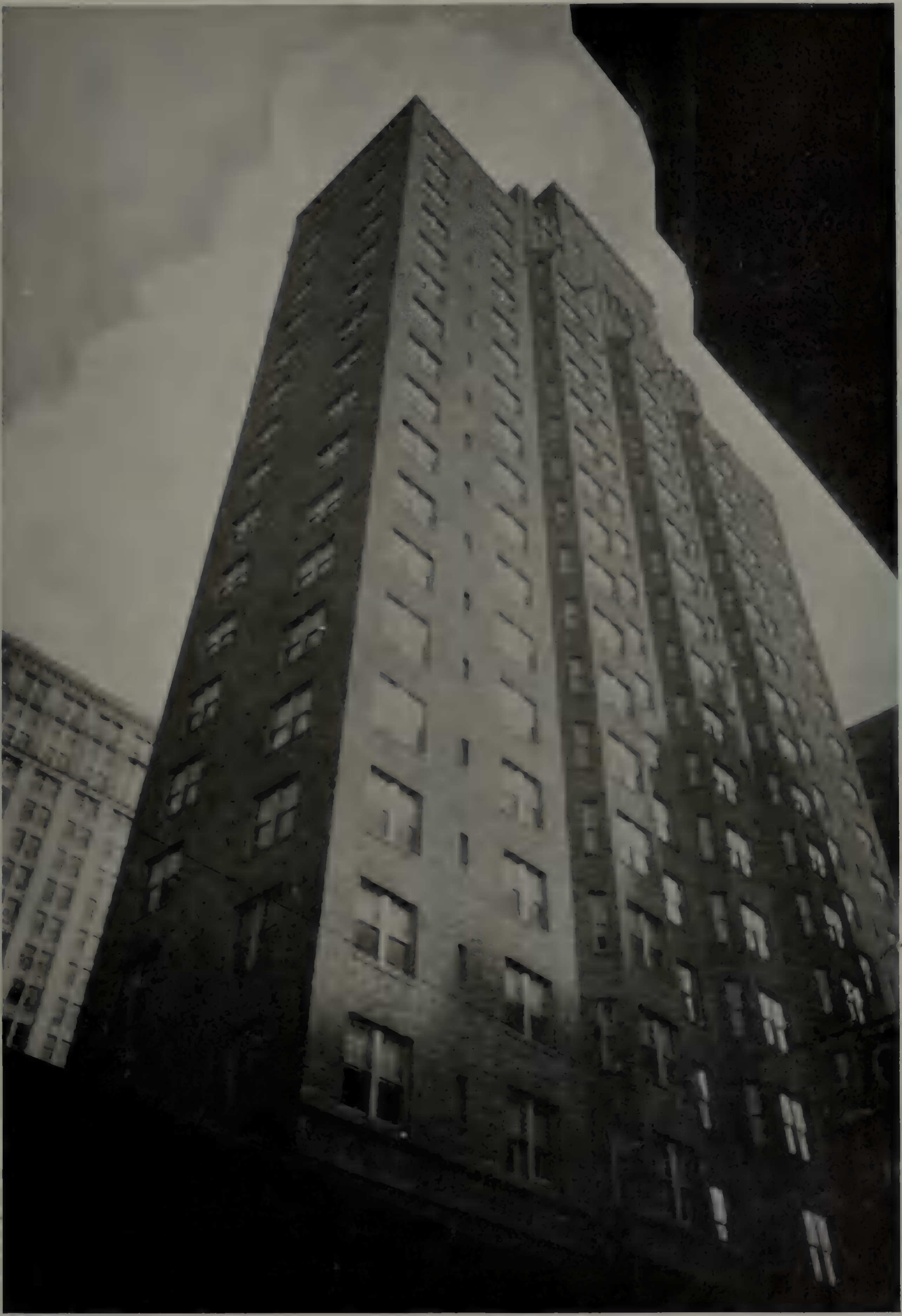
ORDER OR CHAOS

As has been previously emphasized, these studies are diagrammatic only. If they represented merely planning ideals there would be no reason for stopping with mere adaptations of present forms. Why not go the whole way and adopt such thoroughly organized schemes as those suggested by Le Corbusier for his "City of the Future"—or Sunlight Towers as suggested by Kocher and Ziegler in THE RECORD, March, 1929. Certainly these are more imaginative and perhaps more rational than the suggestions offered here. But they require a definite and immediate revolution of our entire ideas of city building and land ownership. These suggestions on the other hand have been built up step by step from existing conditions and habits; they represent possible improvements under guided evolution. To secure any degree of reasonable stability and satisfactory solution of our present city problems, we must place controls on the use of land both in its original subdivision and in the form and capacity of its third dimensional elements and human content. Such controls are already existent in the enforcement of standard street patterns and in zoning control of height and bulk of buildings, and provision of open spaces. Evolution is not needed so much in the kind as in the degree of such control. Present controls have made some impression on the quality of city building, but far too little They fall far short of placing a sufficient check on the congestion of land use to assure either decent living conditions or reasonable traffic burdens on our streets. Improvements are to be had, first through a better disposition of space in streets—open spaces and building areas, and second, through a regulated maximum bulk or density which may be secured either through a proper relation of built-on to open space on each individual site, or, better, a combined bulk and pooled open area for each given block or unit cell. These studies indicate roughly that we might easily and without hardship or excessive cost go so far as to limit building areas in our larger city residential districts to a 20% maximum ground coverage and perhaps 30 families per gross acre—the distribution in small buildings or large, high or low, to be somewhat optional, adjustments being made on the basis of at least a 40-acre unit cell. This is from 50% to 100% greater cover and density than that used in these studies. The exterior suburban half-mile units have about 1,600 dwellings in 206 acres or 8 families per acre, including apartments on one side touching the Circuit Boulevard. The interior units have about 19 families per acre at 2 to 3 and 6 stories (3,900 families in 206 acres) or 22 families per acre in 3 to 6 and 9 story apartments in plan X or with a 15-acre park center in each quarter unit (4,200 families in 206 acres) in plan Y. Even these low coverages and densities provide for over a quarter million population on 67% of the 3-mile square city not otherwise devoted to large parks, business, clubs, and church sites. This seems almost incredible until we understand that within this limited belt, only 1¼ miles at any point from the edge of the business center on the one hand or open country on the other, we expect to place only dwellings and all those things directly associated with *living* rather than with *working:* dwellings, apartments, stores and markets, garages, etc. We eliminate from this narrow area all those usual interruptions and foreign uses which customarily lie on our way from dwellings to work. Such are railroad yards (even stock yards), lumber and material yards, coal pockets, junk yards, warehouses, ice plants, gas tanks, one-story industrial plants, tax payers and dirt collecting vacant lots held open for speculation and anticipated profit. All these not only interfere with our convenience and double or treble our distances of daily travel, but increase the length of utilities and other services otherwise necessary for our orderly and connected residential area. These interlopers must be removed under the plan only to a maximum of 1½ miles from the center of our residential areas—where with industries just beyond they will be in easy reach over traffic arteries of double capacity giving access inward to the commercial center and outward to supply and industrial centers, in opposite directions at the morning and evening hours of congestion. Neither the arrangement and disposition of these work and supply areas nor the problems of transportation are attempted in this study. But by limiting the size and capacity of living areas to 3 miles over-all and surrounding them with park land and park belts, 250,000 people are provided for in a single unit with four sides open for other purposes and restricted against residential use for a distance sufficient for these other needs. Instead of enlarging these units and multiplying congestion and interference, larger cities should be composed of additional units. Five such units either as a cross or better a check board permit 1½ million population with four interrelated open areas three miles square for industrial needs—truck gardens, landing fields and larger recreational needs not supplied within the habitation units. Even this city requires a total spread of only nine miles. A somewhat enlarged business center in the central unit would require merely an increased height of apartments for the same population within the circuit boulevard leaving the zoned proportion of dwellings 35% elevator, 33% flats and 32% single-family dwellings, or any other proportion most suitable to local needs. Wide variations in the kind and density is possible under the plan. It is to be remembered, however, that no permanently satisfactory or scientific method for designing streets for utility capacity has been found practicable without assuming and maintaining some reasonable limits to the population to be served.





A discussion by Mr. Wright of the traffic system associated with his plan will be found in "The American City" for March



Rittase Photo

WESTBURY APARTMENT HOUSE, PHILADELPHIA
FRANK E. HAHN, ARCHITECT

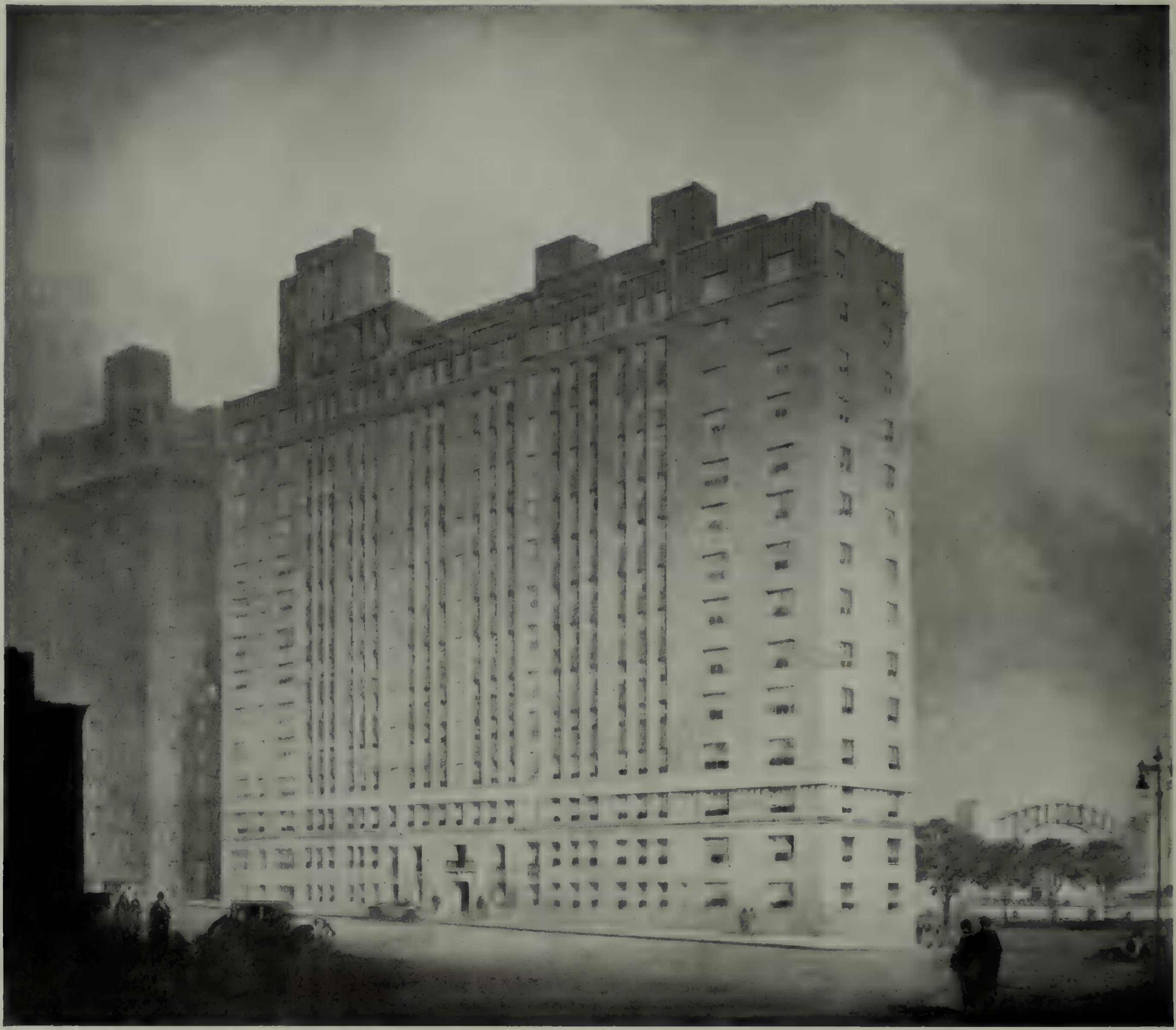
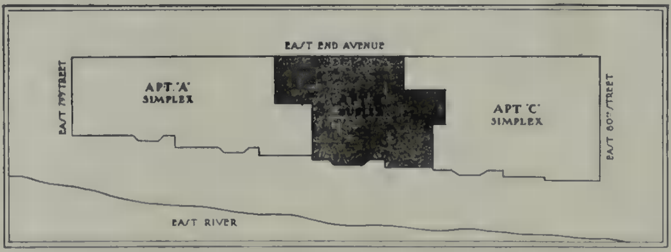


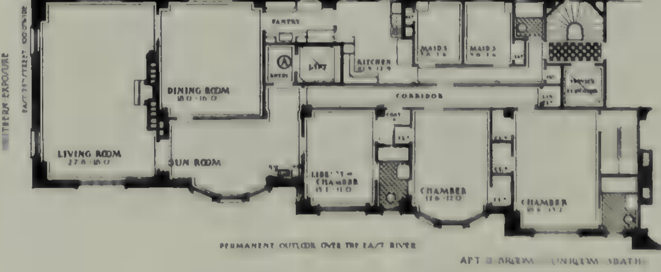
Photo. Dreyer

NUMBER 1 WEST END AVENUE APARTMENT, NEW YORK CITY

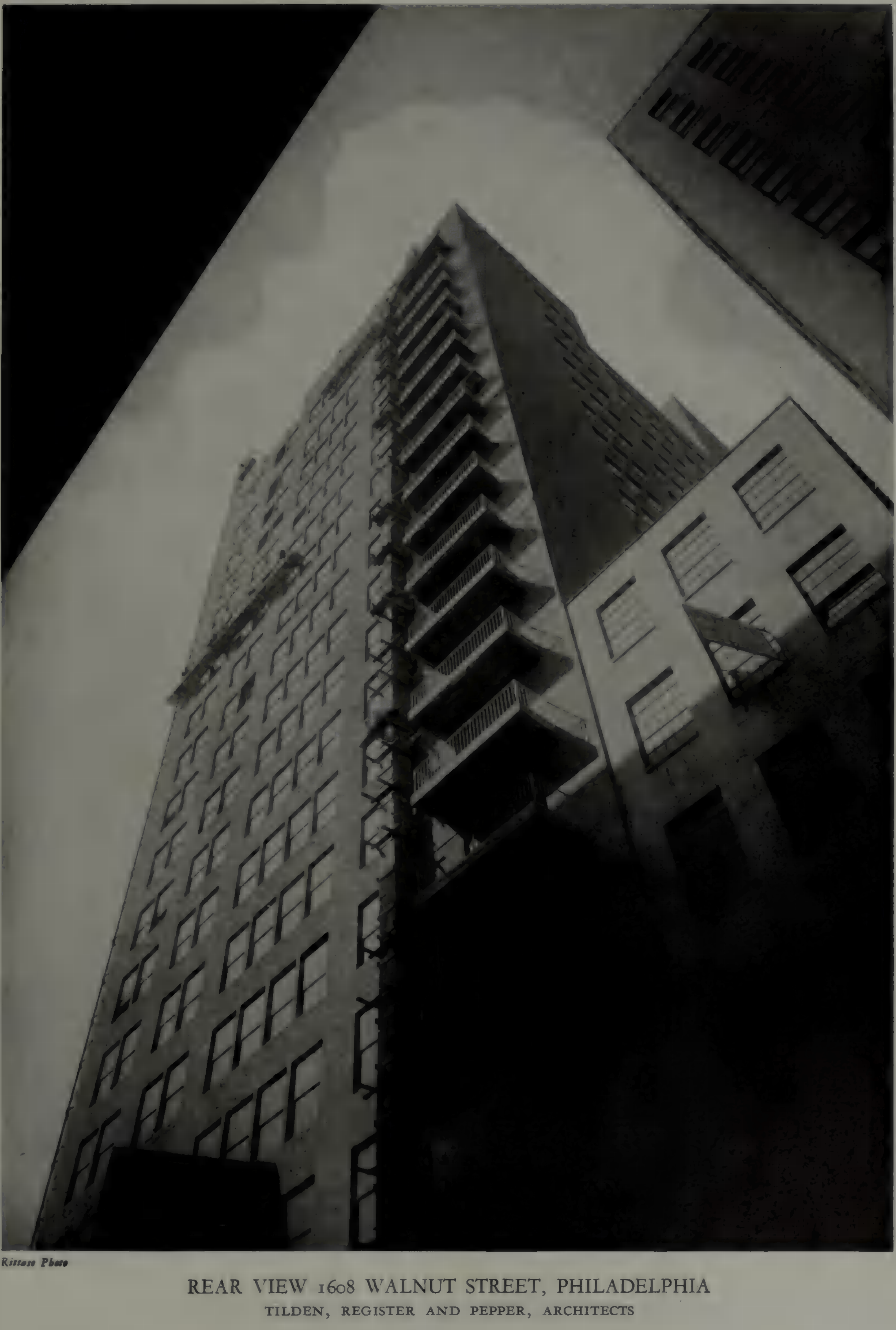
PLEASANTS PENNINGTON AND ALBERT W. LEWIS, ARCHITECTS



The shaded portion represents duplex apartments



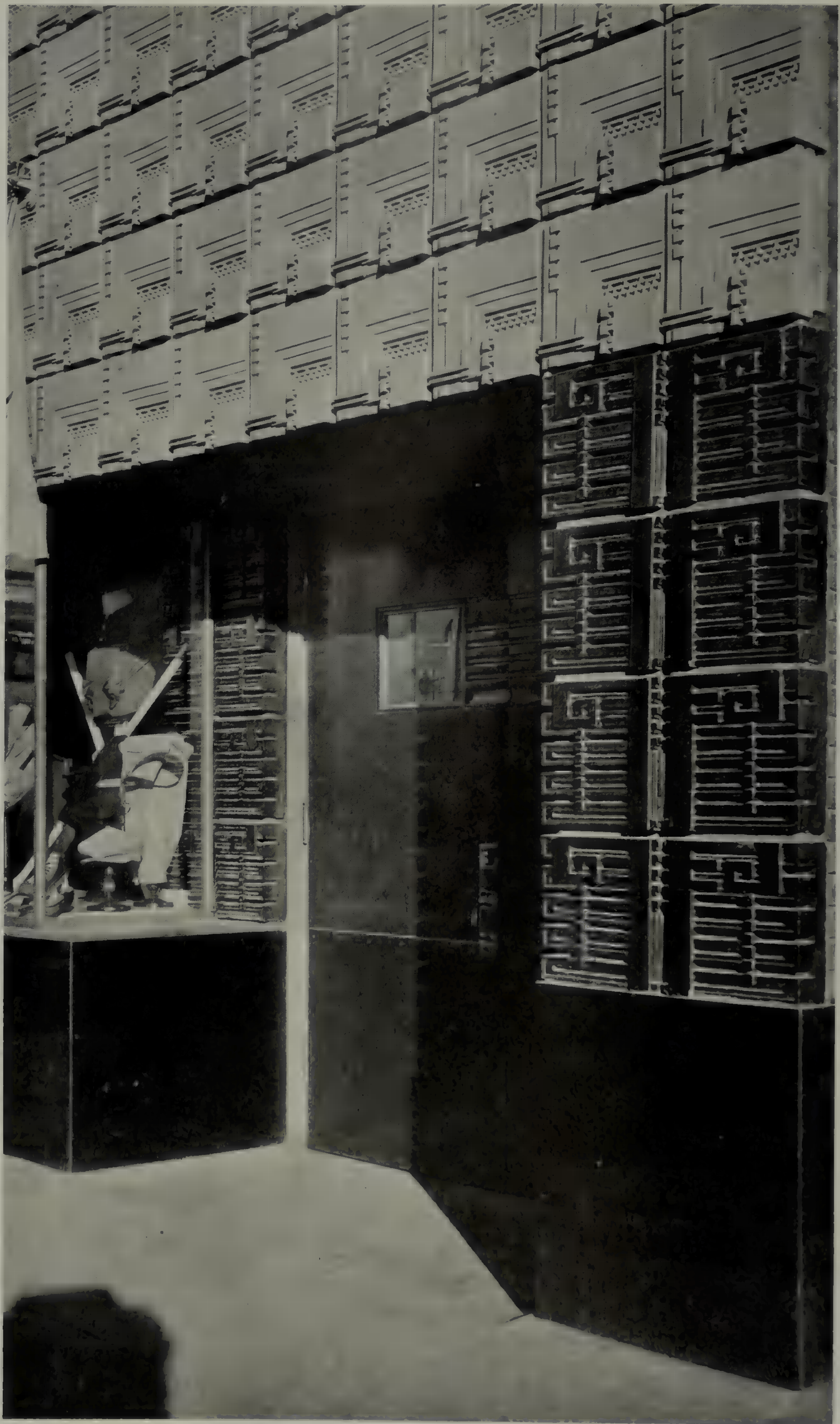
Simplex apartment, type A



Rittase Photo

REAR VIEW 1608 WALNUT STREET, PHILADELPHIA

TILDEN, REGISTER AND PEPPER, ARCHITECTS



SHOP FRONT IN AN APARTMENT BUILDING

DELMAR AND DE BALIVIERE BUILDING, SAINT LOUIS

BOWLING AND SHANK, ARCHITECTS

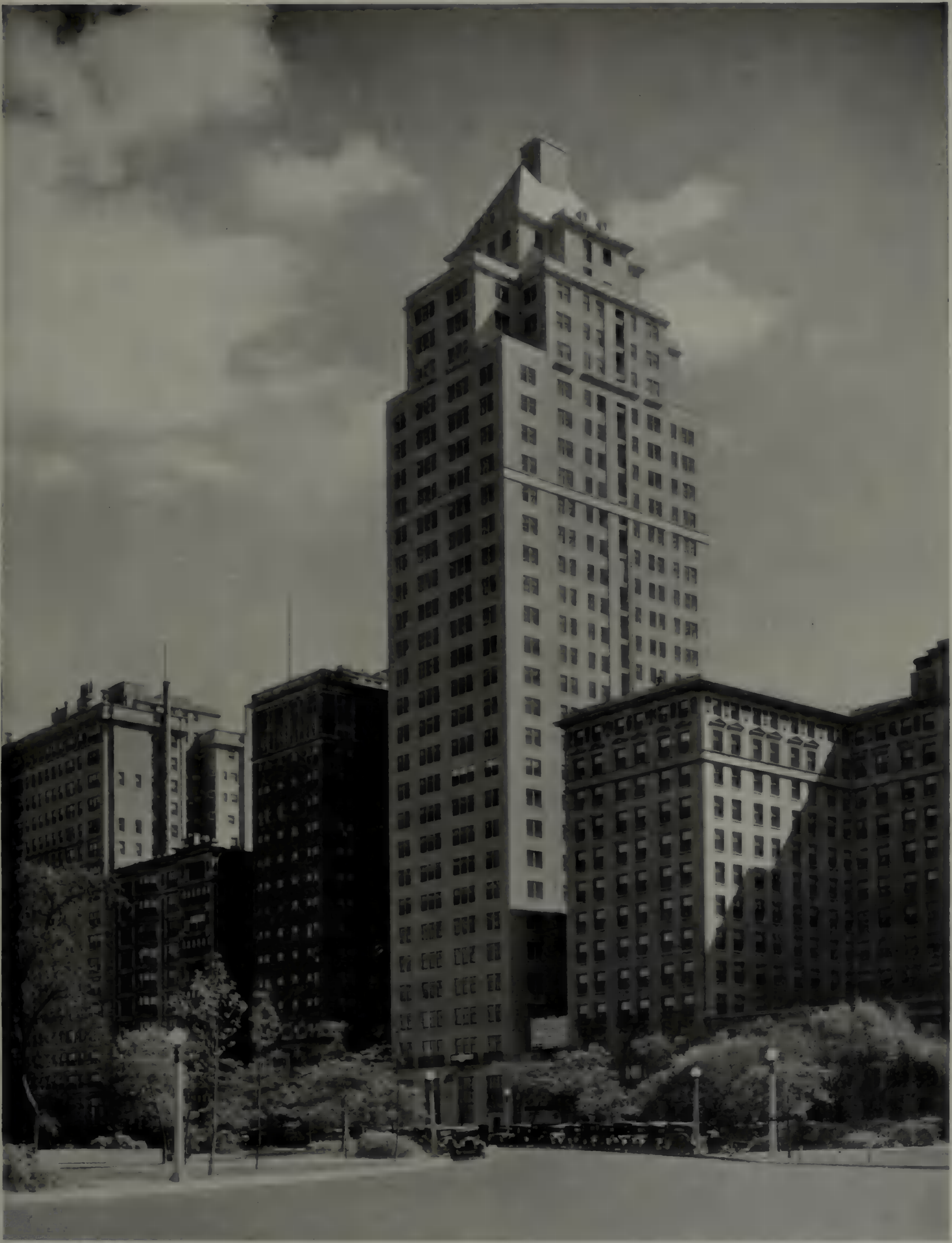
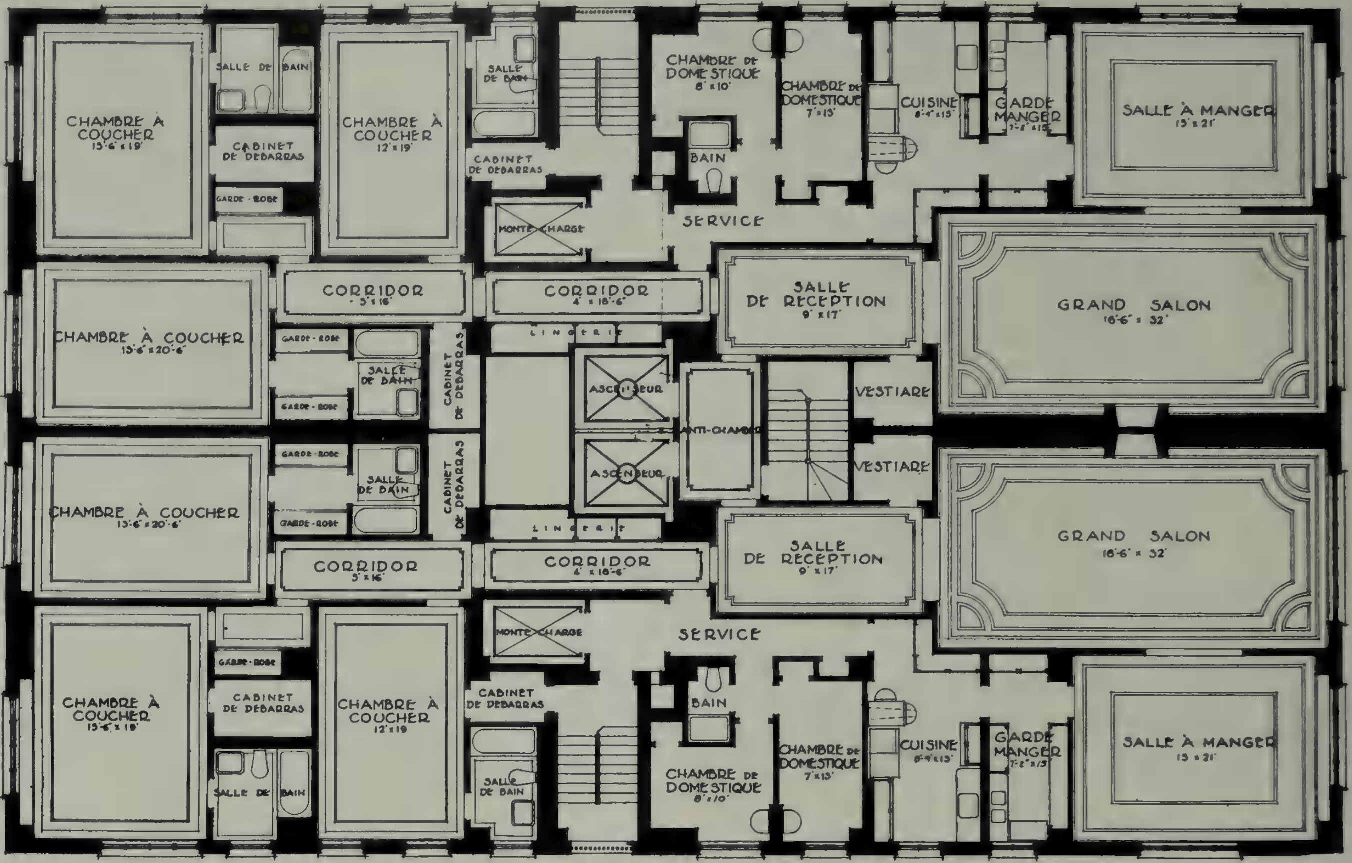


Photo. Chicago Arch. Photo. Co.

DRAKE TOWERS, CHICAGO
BENJAMIN H. MARSHALL, ARCHITECT



TYPICAL PLAN, 20th TO 26th FLOOR
DRAKE TOWERS, CHICAGO
BENJAMIN H. MARSHALL, ARCHITECT

The planning of so large a rectangular area is always difficult, necessitating such devices as "galleries" (here called *salles de reception.*) It has been handled well. If such handicaps are to be eliminated we must have a better subdivision of the land.

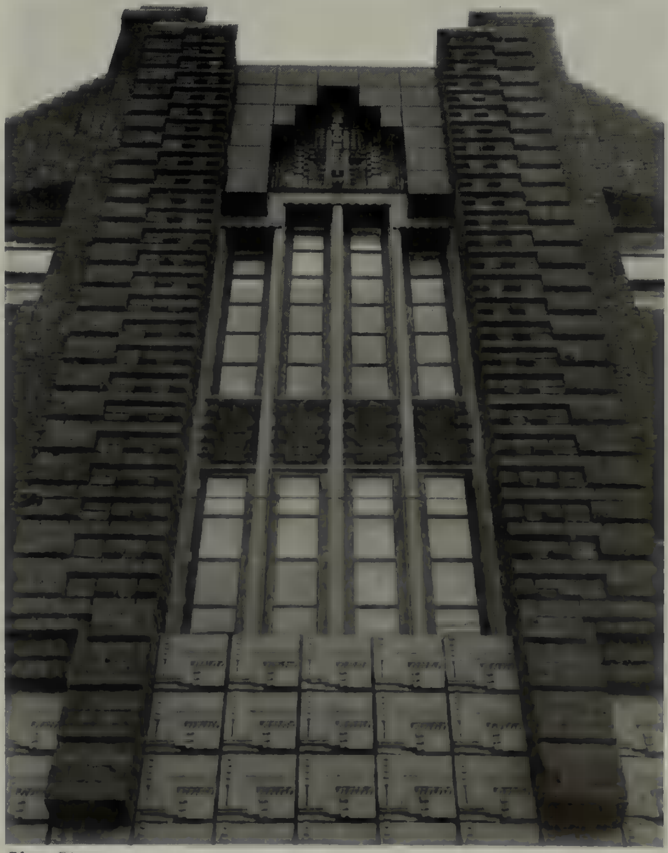
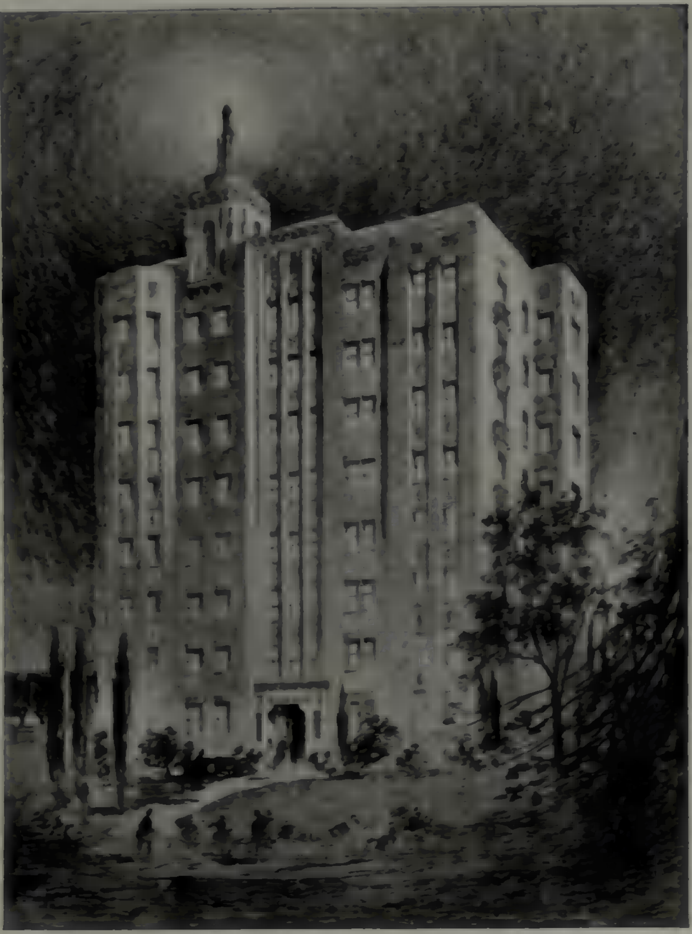
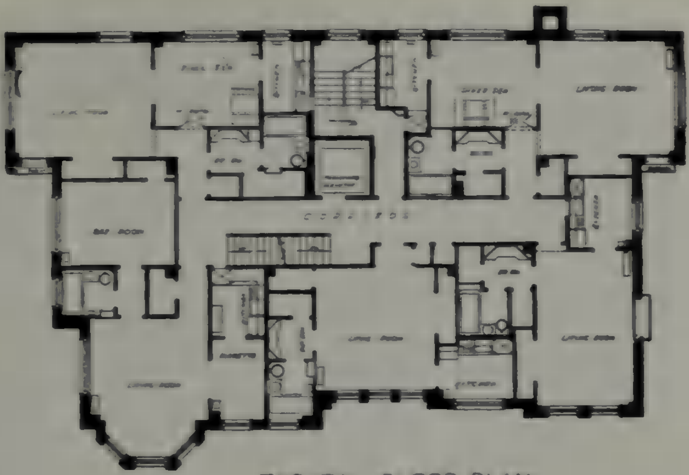


Photo. Piaget

APARTMENT HOUSE FACADE
DELMAR AND DE BALIVIERE BUILDING, ST. LOUIS
BOWLING AND SHANK, ARCHITECTS

The use of abstract straight-line decorative motifs of this sort began with Frank Lloyd Wright. Experiments with it are to be welcomed, but considerable study of the underlying ideas will be necessary before success can be had in general practice.





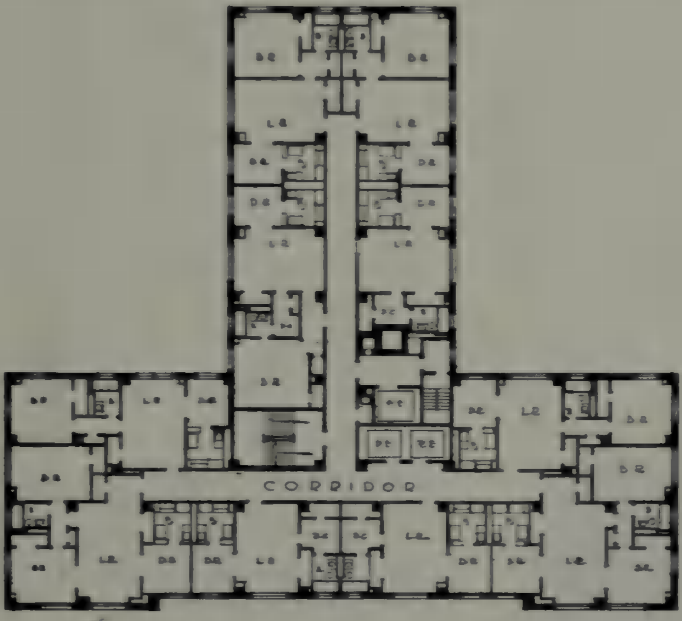
TYPICAL FLOOR PLAN·

Above and Left: KING COLE APARTMENT, KANSAS CITY

NELLE E. PETERS, ARCHITECT

Below: APARTMENT AT NINETEENTH STREET AND SECOND AVENUE, NEW YORK CITY

GIULIO LEVY, ARCHITECT

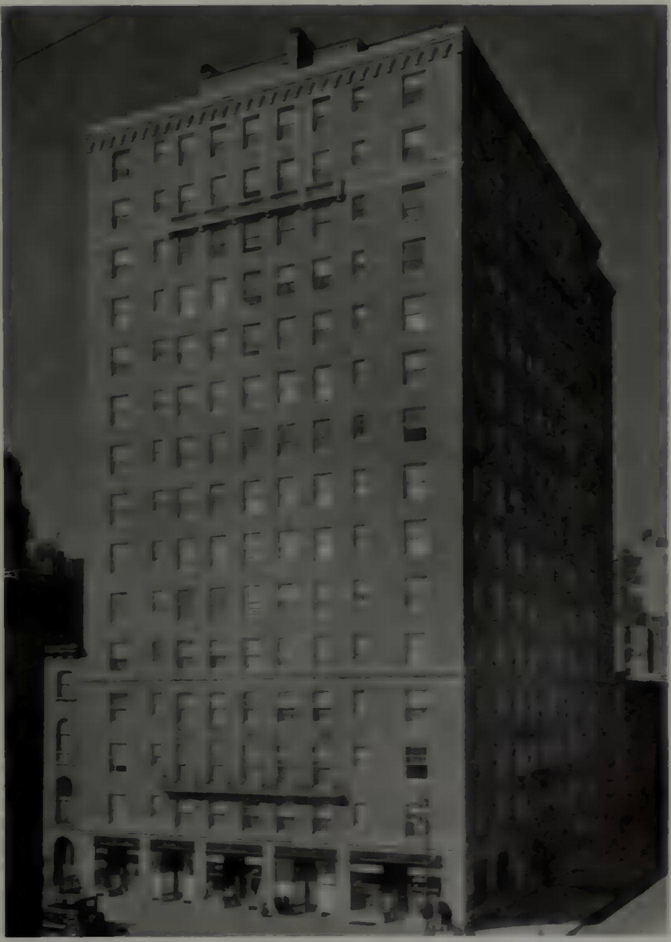


TYPICAL FLOOR

HAWTHORNE APARTMENTS, ST. LOUIS

PLEITSCH AND PRICE, ARCHITECTS

Living room with disappearing beds, dinette, dressing closet, and kitchenette occupy small floor area



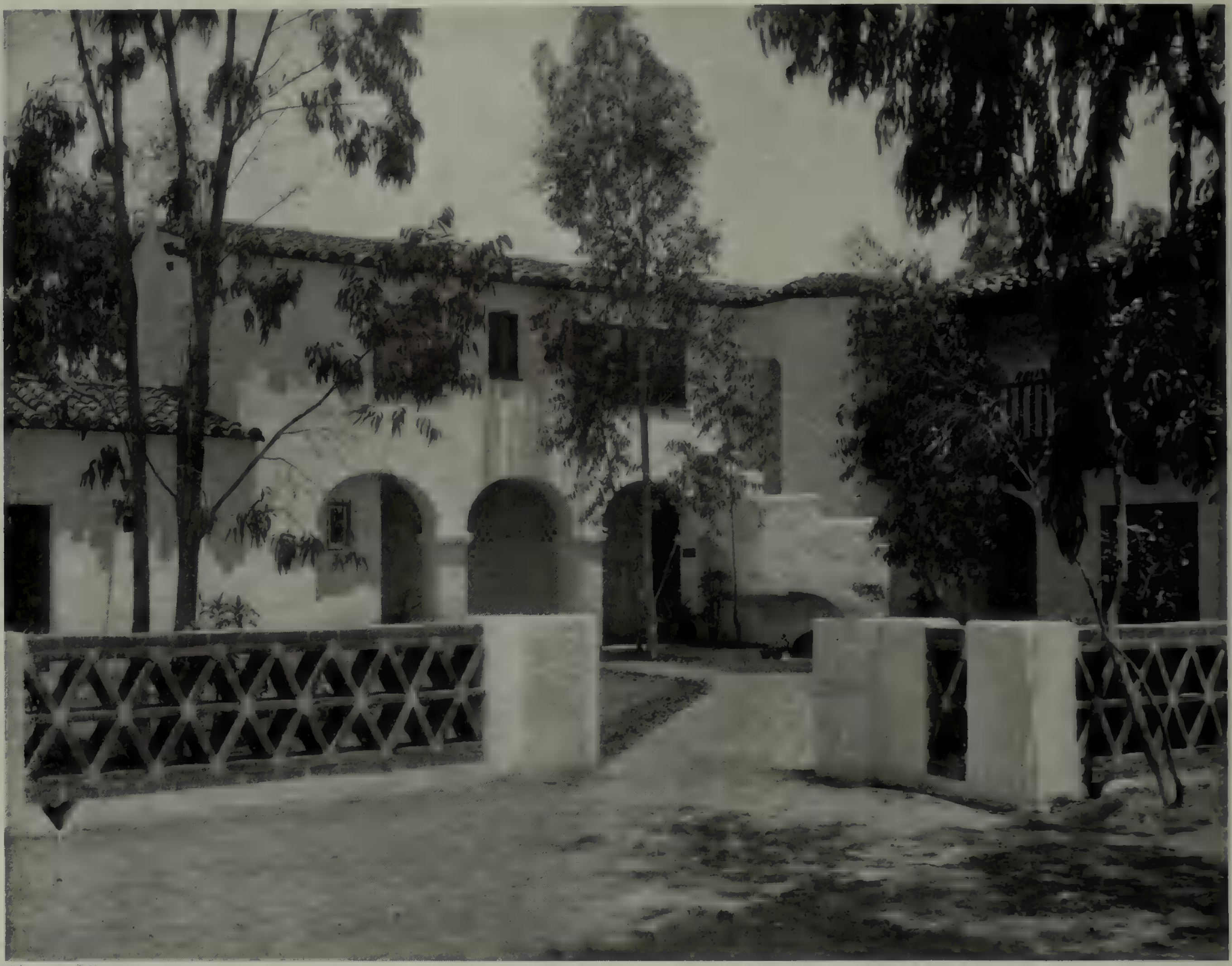
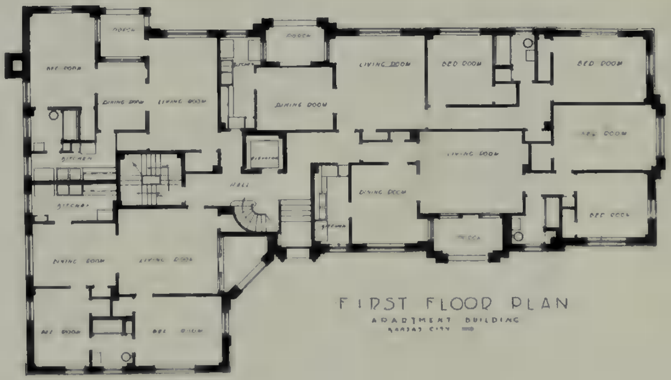
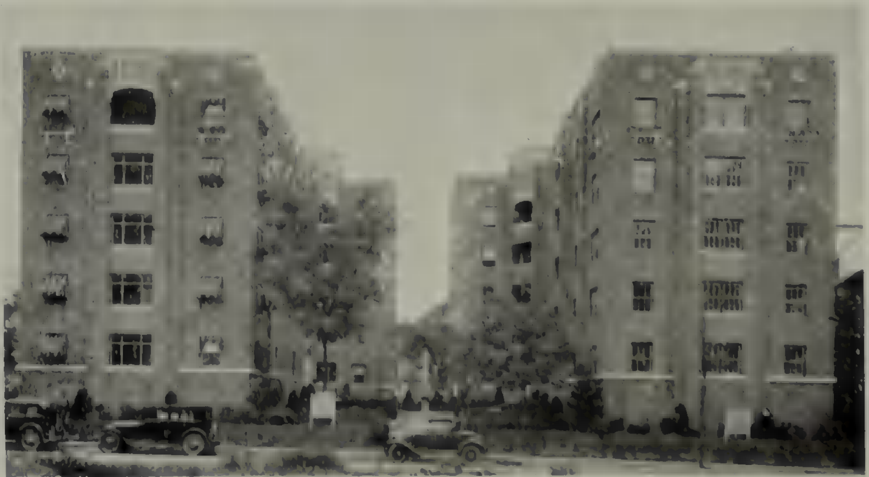


Photo. Padilla Studios



Above: ENTRANCE GATE
VALENCIANA APARTMENTS
RANCHO SANTA FE, CALIF.
DESIGNED BY LILIAN J. RICE



At Left: FIRST FLOOR PLAN AND
GENERAL VIEW
APARTMENT BUILDINGS,
KANSAS CITY
NELLE E. PETERS, ARCHITECT

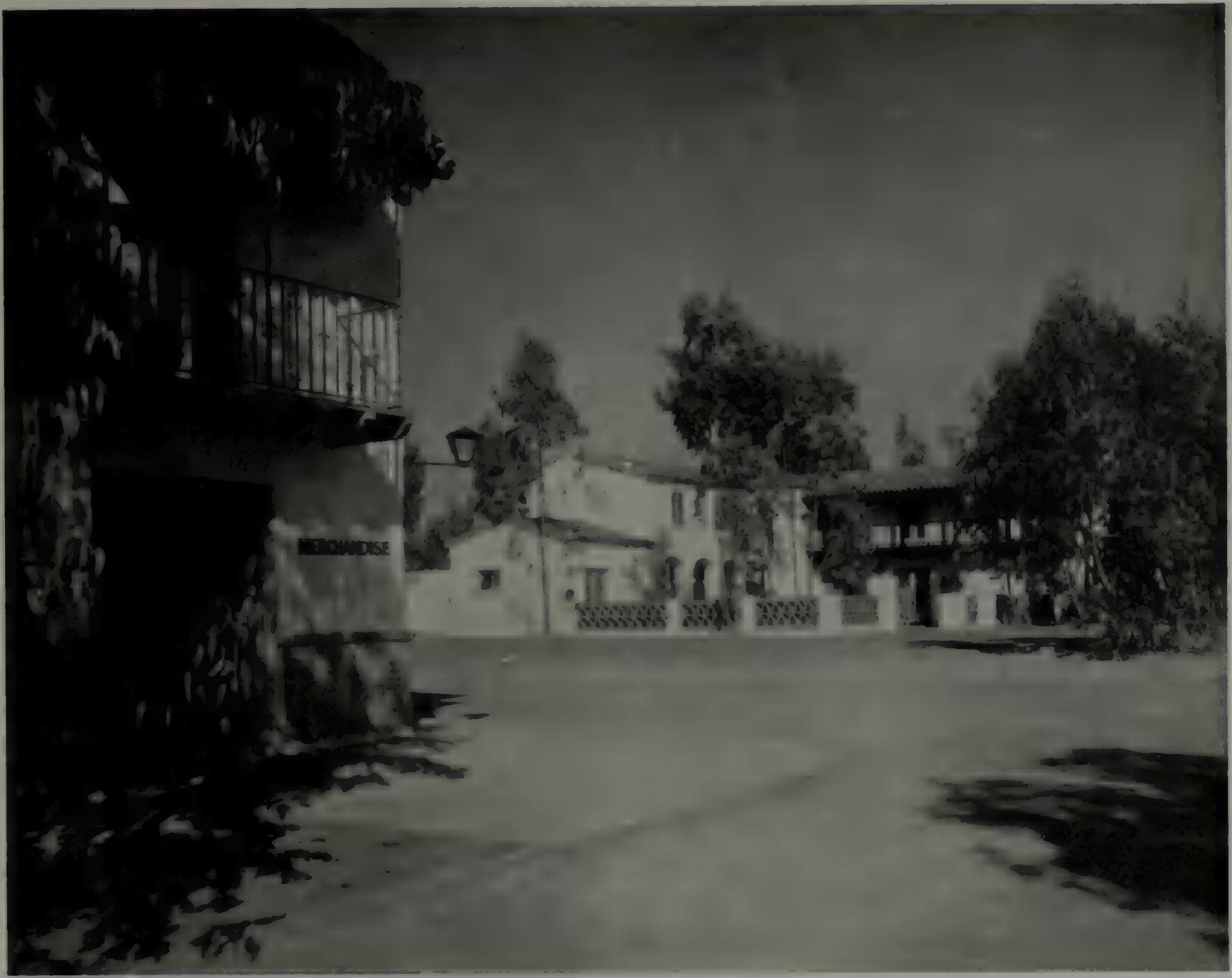
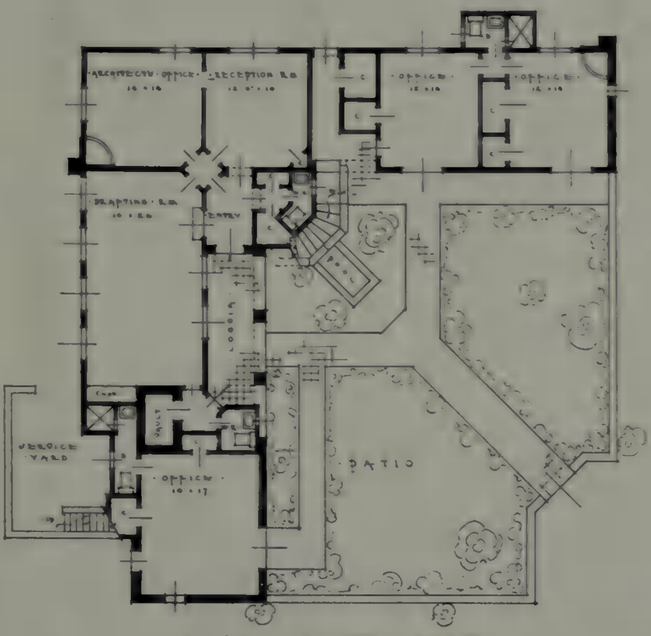
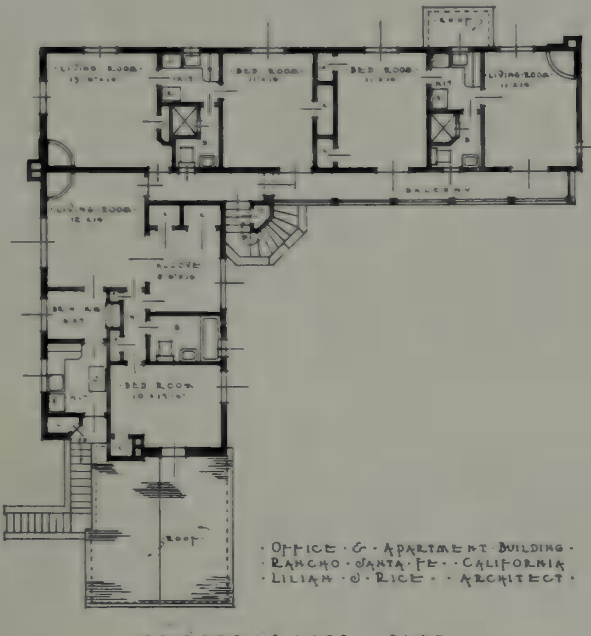


Photo. Padilla Studios



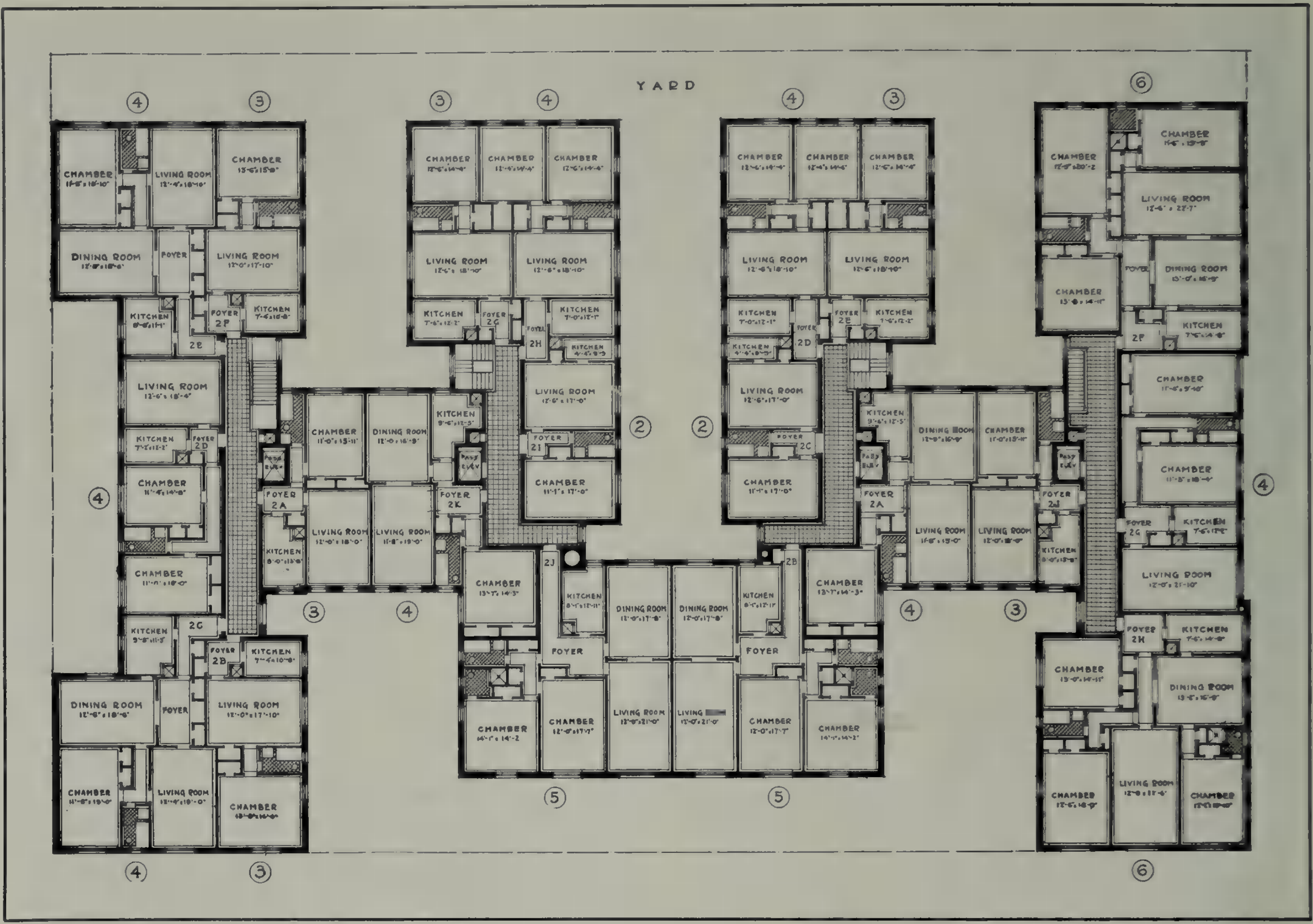
· FIRST · FLOOR · PLAN ·

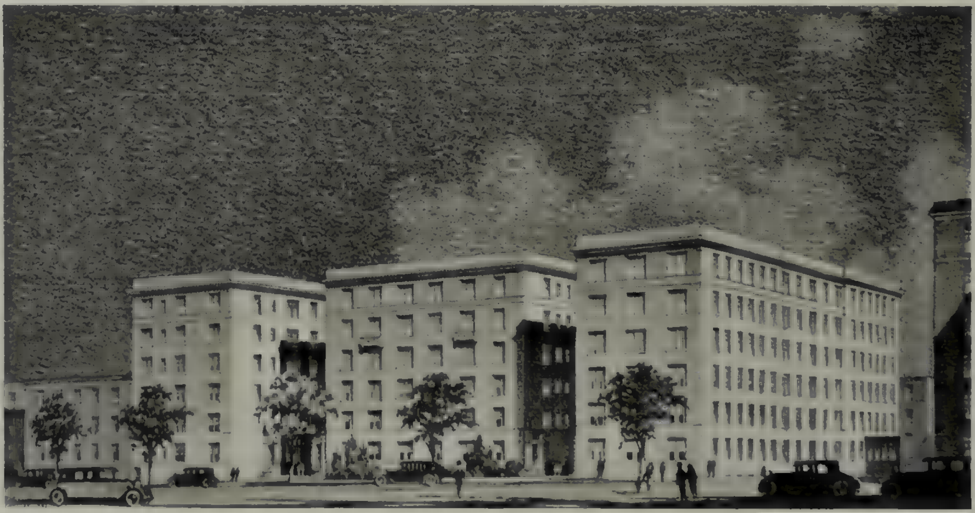

LIVING ROOM
BED ROOM
BED ROOM
LIVING ROOM
KIT
KIT
BALCONY
LIVING ROOM
ALCOVE
BED RM
KIT
BED ROOM
ROOF
ROOF
· OFFICE · & · APARTMENT · BUILDING ·
· RANCHO · SANTA · FE · · CALIFORNIA
· LILIAN · J · RICE · · ARCHITECT ·

· SECOND · FLOOR · PLAN ·

VALENCIANA APARTMENTS, RANCHO SANTA FE, CALIF.

DESIGNED BY LILIAN J. RICE



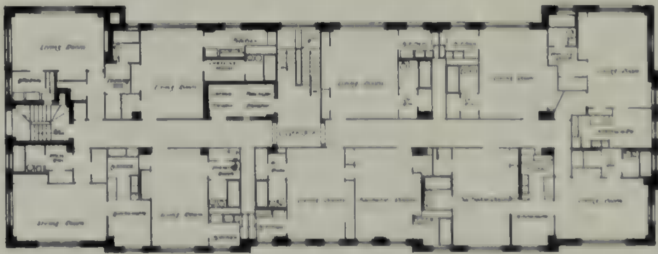


APARTMENT HOUSE ON CROWN STREET, BROOKLYN

BERLINGER AND KAUFMAN, ARCHITECTS

Above: TYPICAL FLOOR PLAN

At Left: GENERAL VIEW

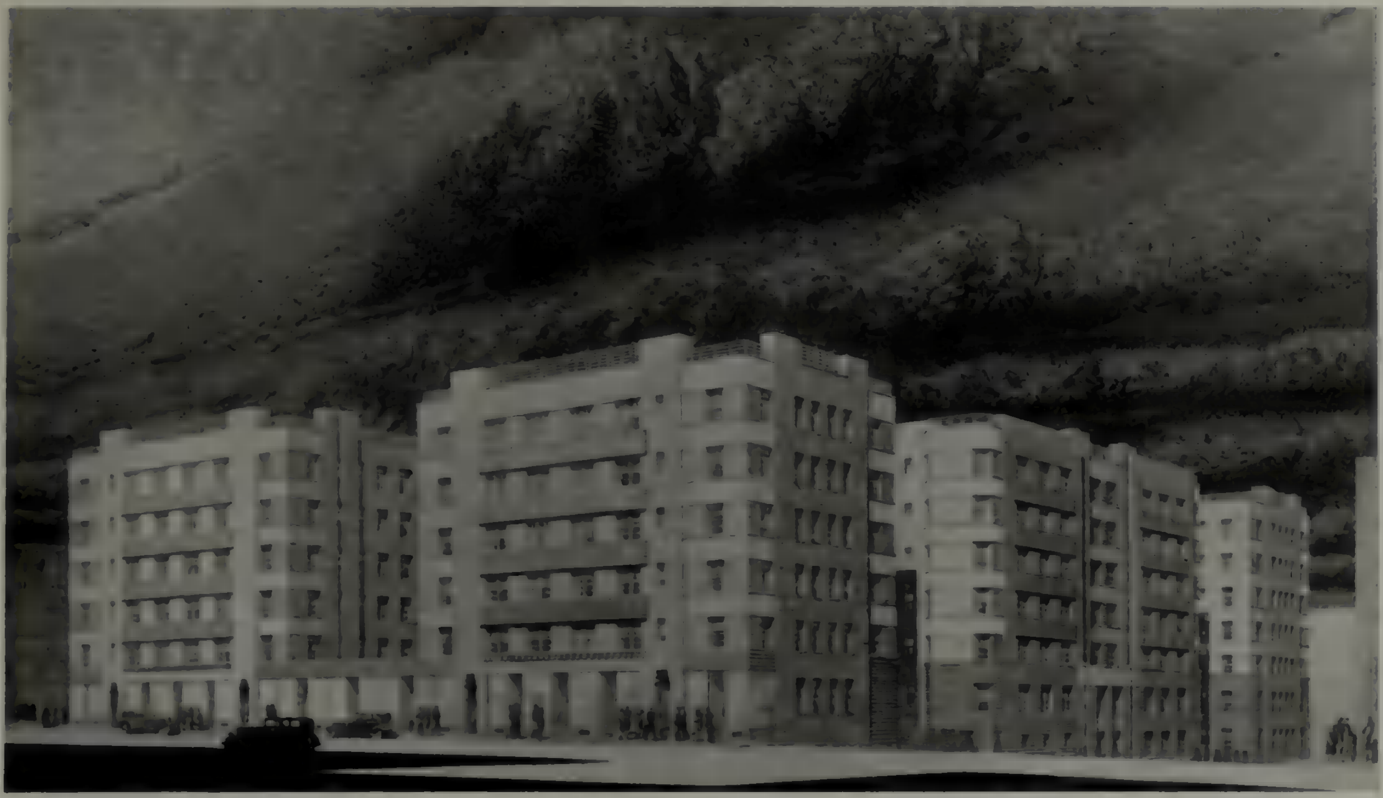


TYPICAL FLOOR PLAN

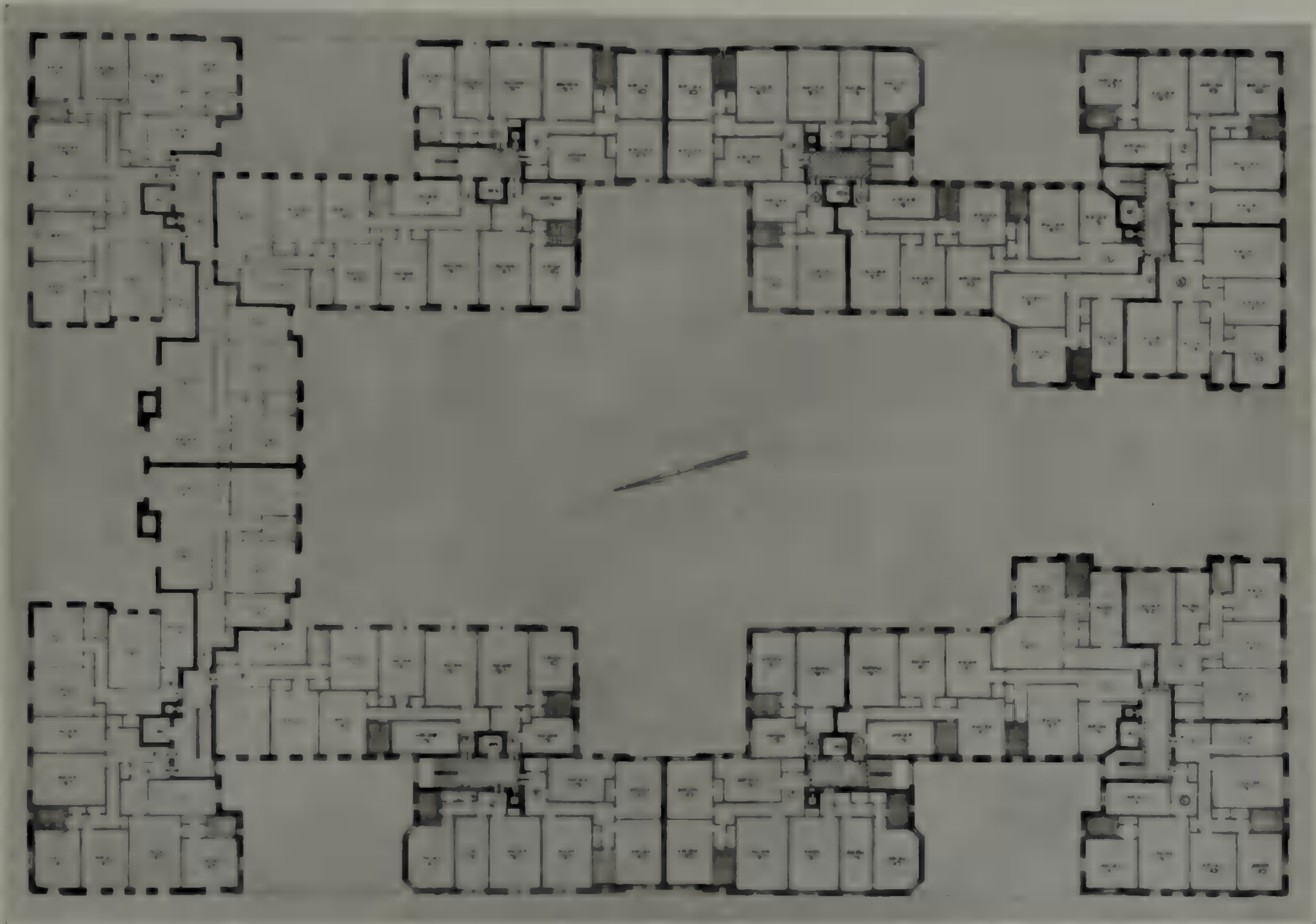
PLAN, APARTMENTS, KANSAS CITY

PLEITSCH AND PRICE, ARCHITECTS

A system of living rooms with kitchenettes. Bachelor rooms may be rented separately or may be sub-rented by tenants holding living suites



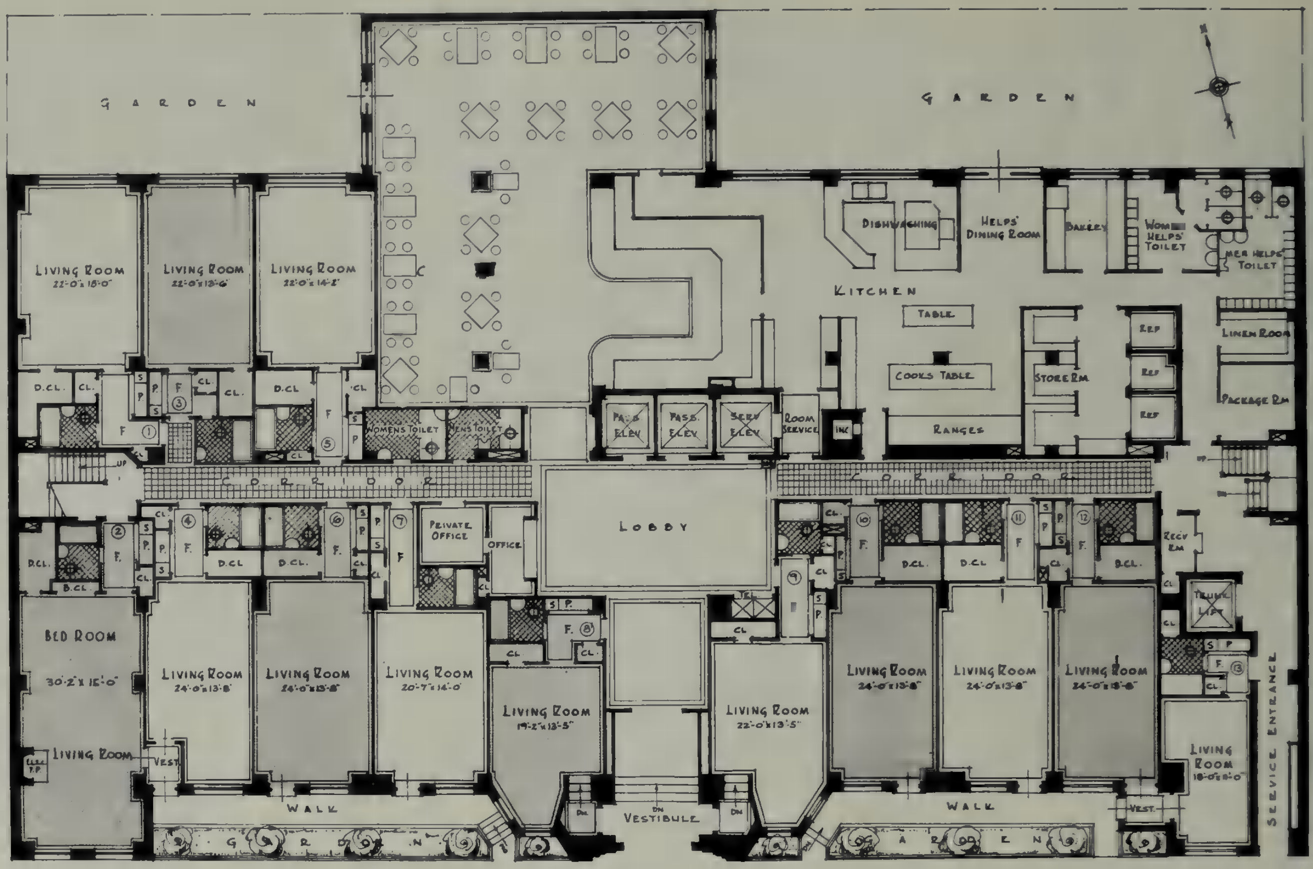
GENERAL VIEW



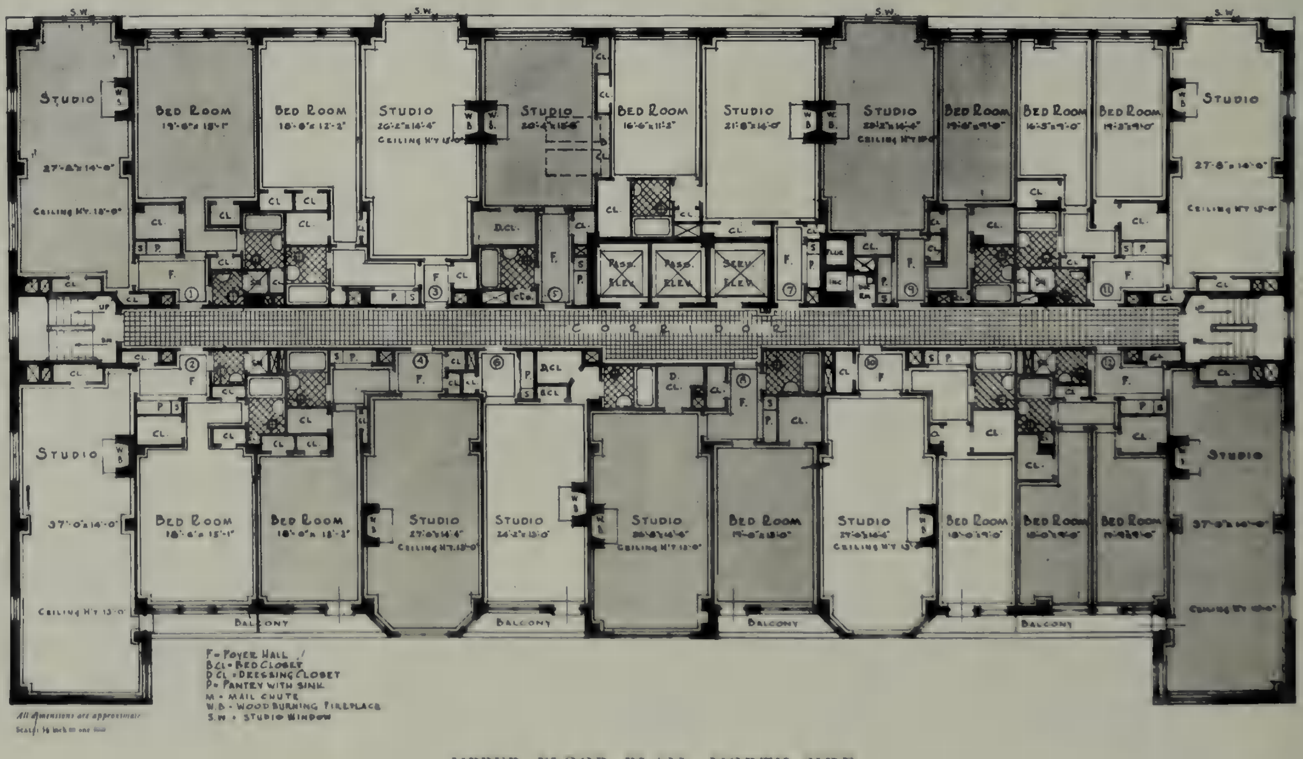
TYPICAL FLOOR PLAN

PROJECT AT GRAND STREET, NEW YORK CITY

SPRINGSTEEN AND GOLDHAMMER, ARCHITECTS



GROUND FLOOR, NORTH SIDE



UPPER FLOOR PLAN, NORTH SIDE

BEAUX-ARTS APARTMENTS, NEW YORK CITY

KENNETH MURCHISON AND RAYMOND HOOD, GODLEY & FOUILHOUX, ARCHITECTS

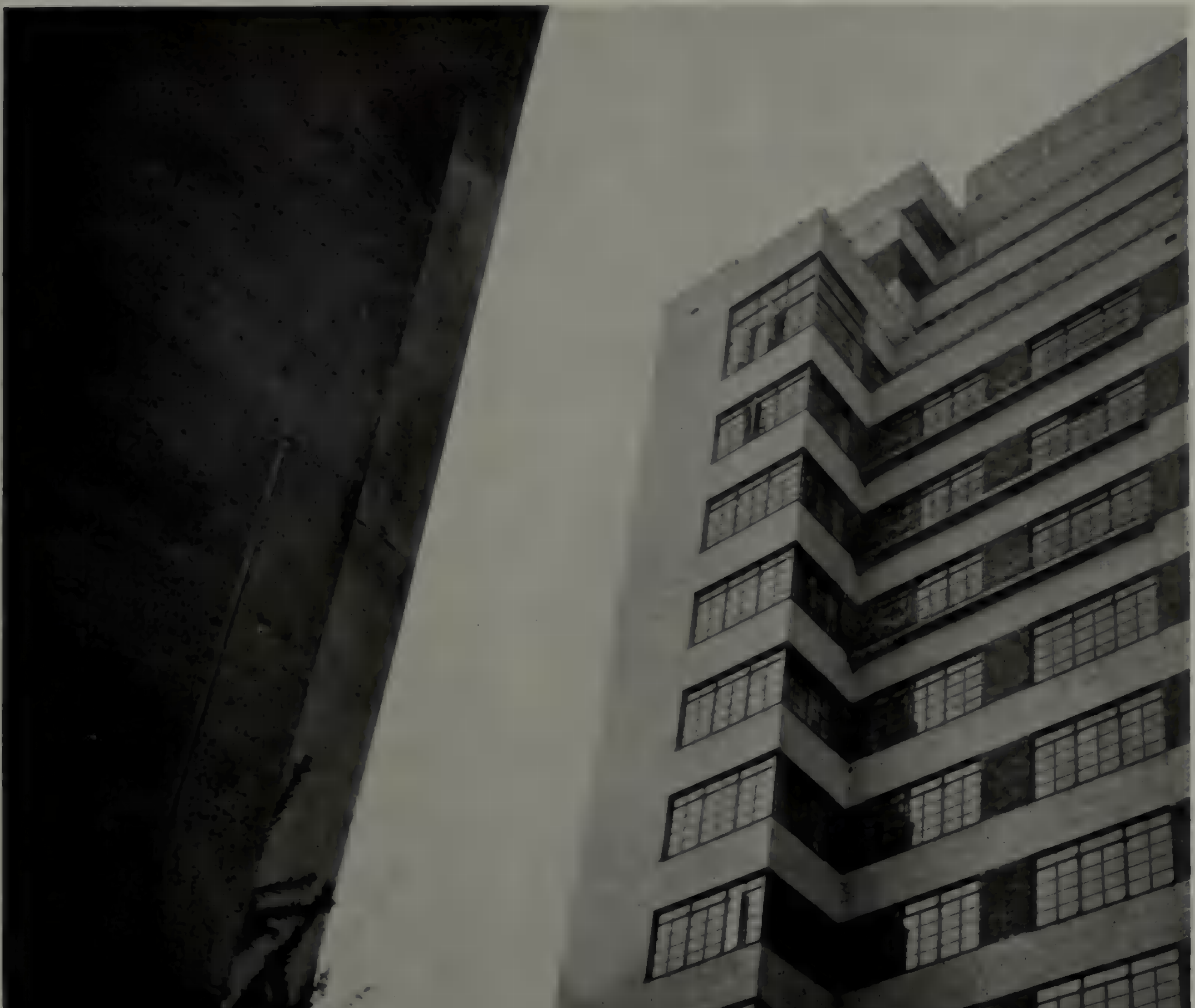
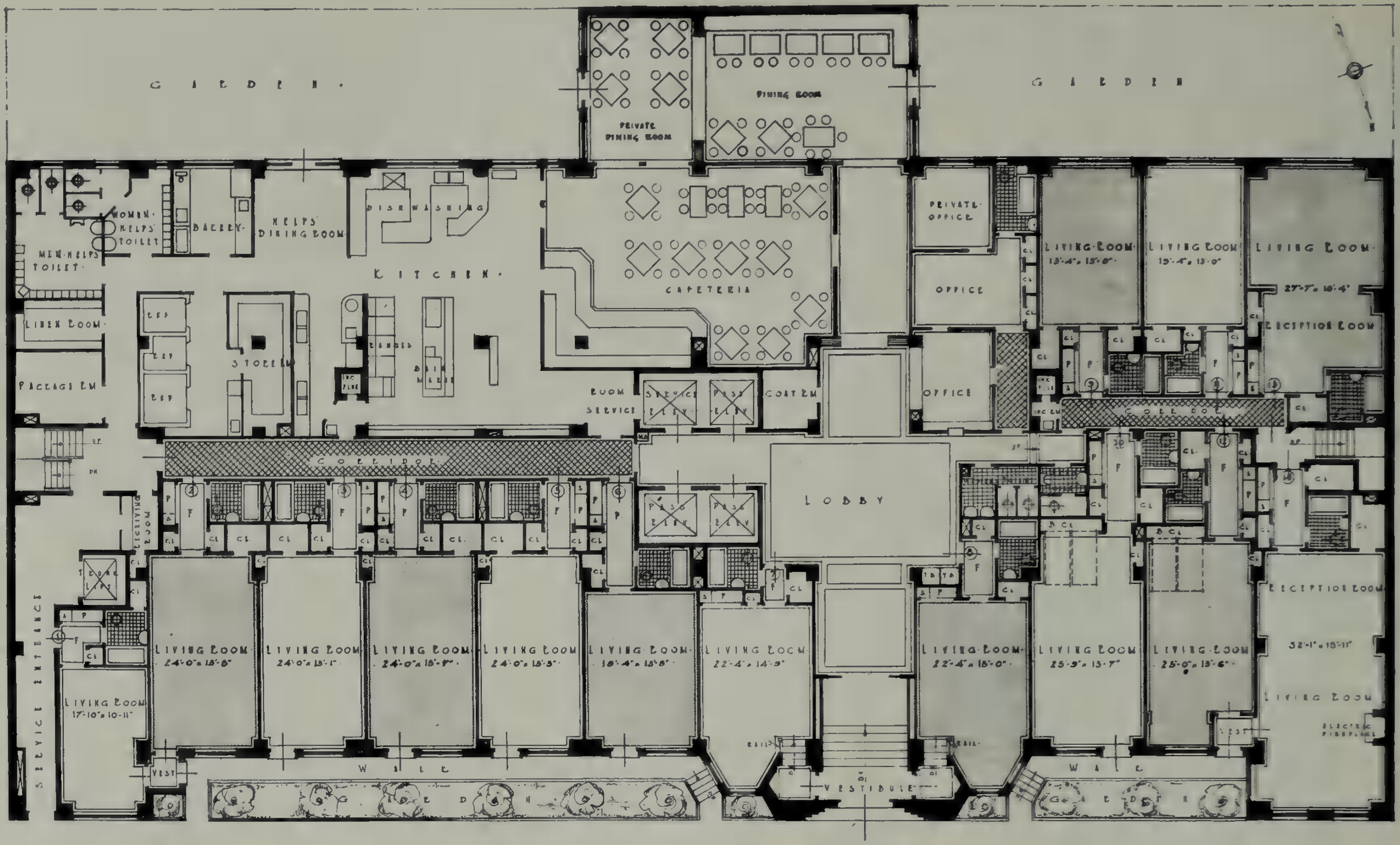


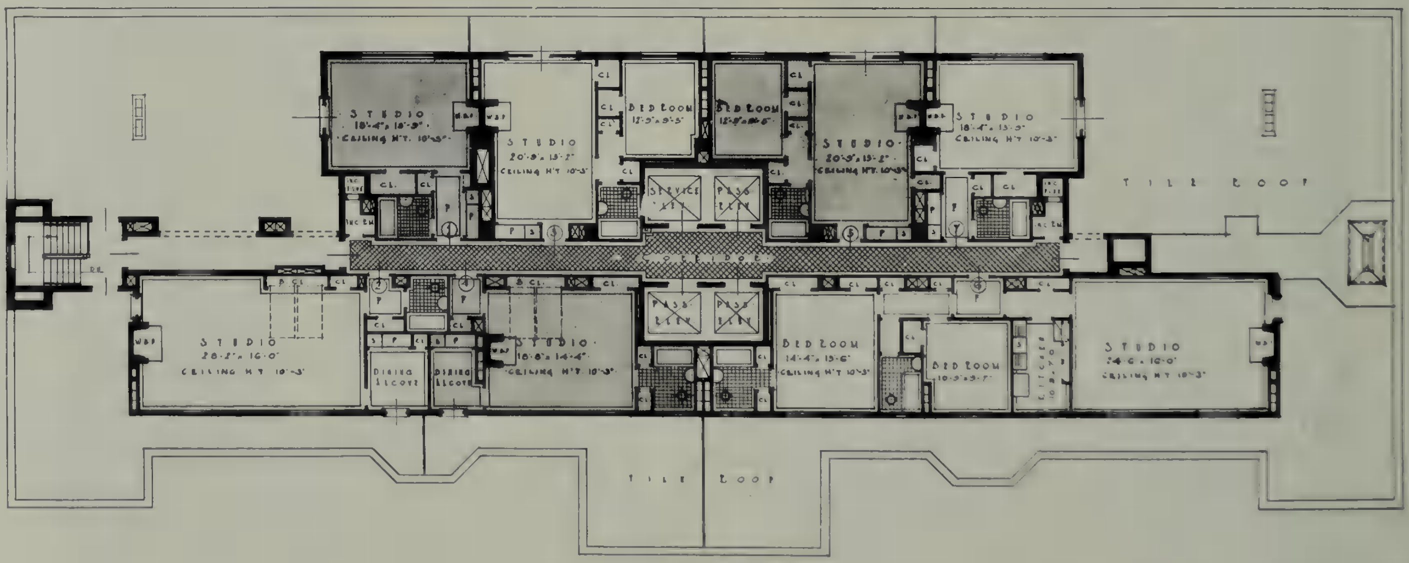
Photo. Abbott

BEAUX-ARTS APARTMENTS, NEW YORK CITY

KENNETH MURCHISON AND RAYMOND HOOD, GODLEY & FOUILHOUX, ARCHITECTS


GARDEN
PRIVATE DINING ROOM
DINING ROOM
GARDEN
WOMEN HELPS TOILET
BAKERY
HELPS DINING ROOM
DISHWASHING
MEN HELPS TOILET
KITCHEN
CAFETERIA
PRIVATE OFFICE
OFFICE
LIVING ROOM 13'-4" x 15'-0"
LIVING ROOM 13'-4" x 13'-0"
LIVING ROOM 27'-7" x 10'-4"
RECEPTION ROOM
LINEN ROOM
REF
STORE RM
RANGES
BAIN MARIE
PACKAGE RM
ROOM SERVICE
SERVICE ELEV
PASS ELEV
COAT RM
OFFICE
CORRIDOR
CORRIDOR
LOBBY
RECEIVING ROOM
STORE LIFT
SERVICE ENTRANCE
LIVING ROOM 17'-10" x 10-11"
LIVING ROOM 24'-0" x 15'-8"
LIVING ROOM 24'-0" x 13'-1"
LIVING ROOM 24'-0" x 15'-9"
LIVING ROOM 24'-0" x 15'-5"
LIVING ROOM 18'-4" x 15'-8"
LIVING ROOM 22'-4" x 14'-9"
LIVING ROOM 22'-4" x 15'-0"
LIVING ROOM 25'-5" x 13'-7"
LIVING ROOM 25'-0" x 15'-6"
RECEPTION ROOM 32'-1" x 15'-11"
LIVING ROOM
ELECTRIC FIREPLACE
VEST
WALK
GARDEN
VESTIBULE
WALK
GARDEN

GROUND FLOOR PLAN, SOUTH SIDE


STUDIO 18'-4" x 15'-9" CEILING H'T. 10'-3"
STUDIO 20'-9" x 13'-2" CEILING H'T 10'-3"
BED ROOM 12'-9" x 9'-5"
BED ROOM
STUDIO 20'-9" x 13'-2" CEILING H'T. 10'-3"
STUDIO 18'-4" x 13'-9" CEILING H'T 10'-3"
TILE ROOF
SERVICE ELEV
PASS ELEV
CORRIDOR
STUDIO 28'-2" x 16'-0" CEILING H'T 10'-3"
DINING ALCOVE
DINING ALCOVE
STUDIO 18'-8" x 14'-4" CEILING H'T 10'-3"
PASS ELEV
PASS ELEV
BED ROOM 14'-4" x 15'-6" CEILING H'T 10'-3"
BED ROOM 10'-9" x 9'-7"
KITCHEN
STUDIO 24'-6" x 16'-0" CEILING H'T 10'-3"
TILE ROOF

PENT HOUSE, SOUTH SIDE

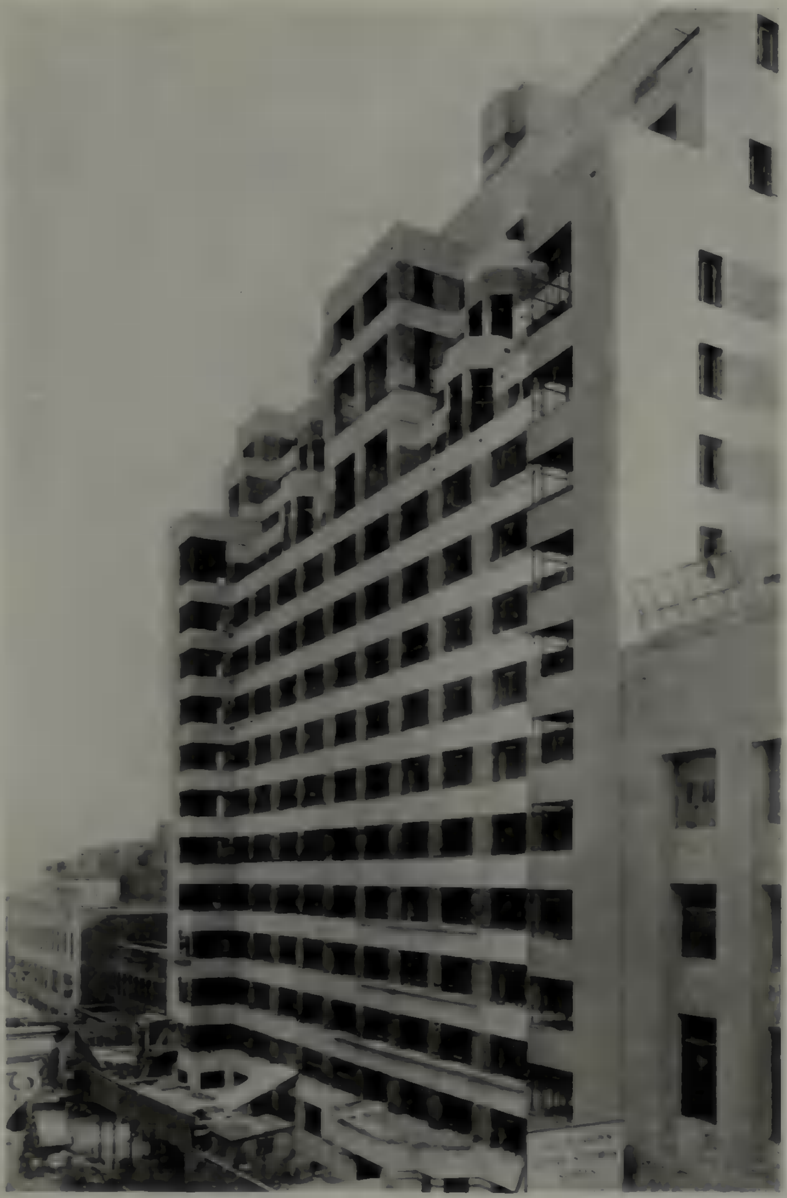
BEAUX-ARTS APARTMENTS, NEW YORK CITY

KENNETH MURCHISON AND RAYMOND HOOD, GODLEY & FOUILHOUX, ARCHITECTS

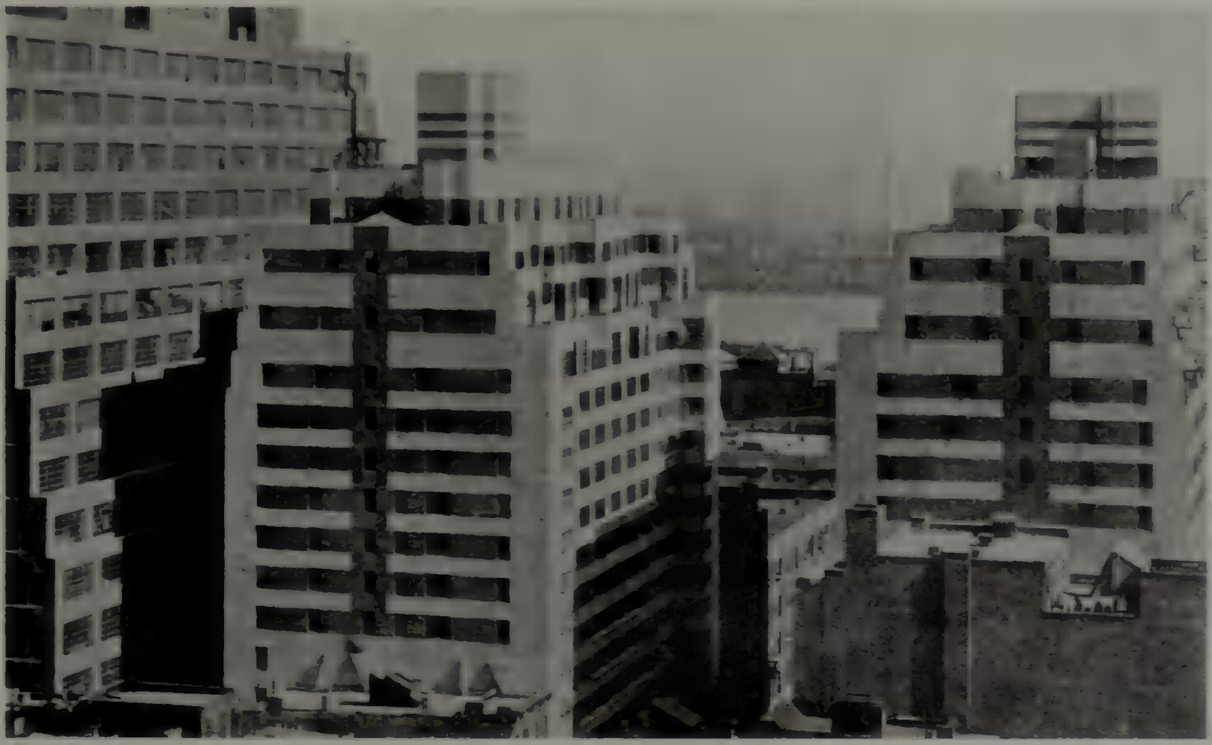
VIEW OF SOUTH SIDE

BEAUX-ARTS APARTMENTS, NEW YORK CITY

KENNETH MURCHISON AND RAYMOND HOOD,
GODLEY AND FOUILHOUX, ARCHITECTS



VIEW FROM WEST



Photos. Bauwelt

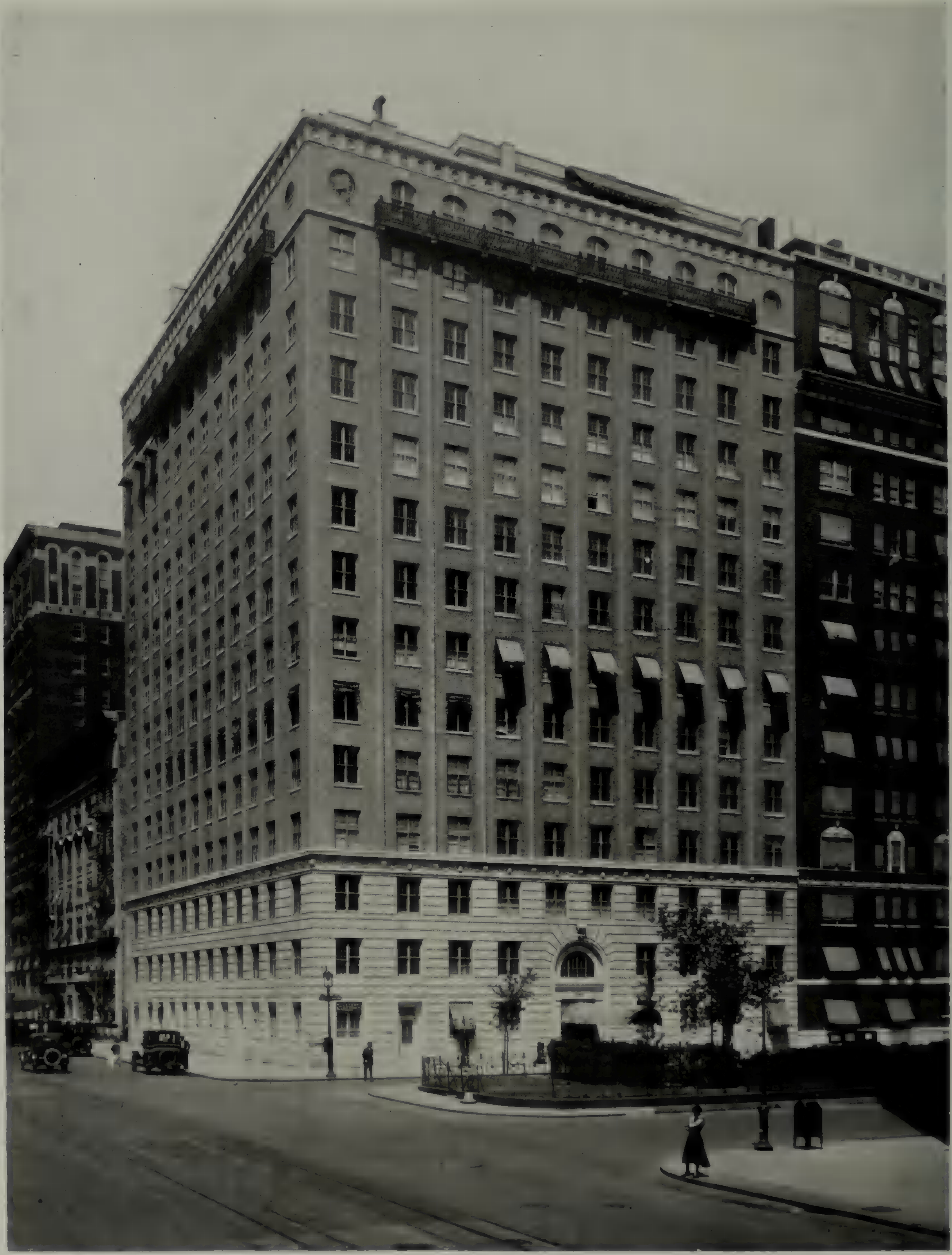


Photo. Wurts Brothers

APARTMENT AT 1040 PARK AVENUE, NEW YORK CITY
DELANO AND ALDRICH, ARCHITECTS

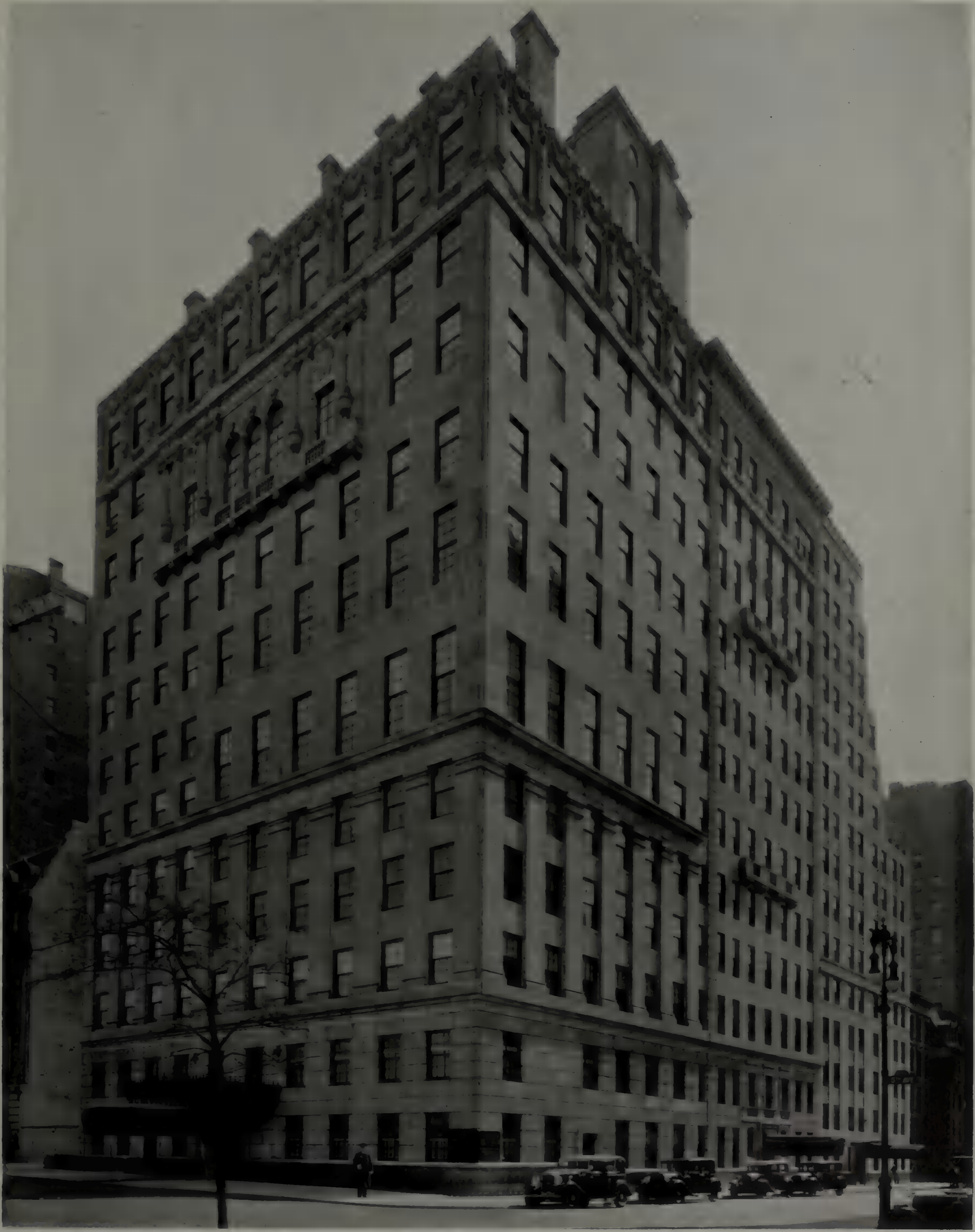


Photo. Wurts Brothers

APARTMENT AT 960 FIFTH AVENUE, NEW YORK CITY

CROSS AND CROSS, ARCHITECTS

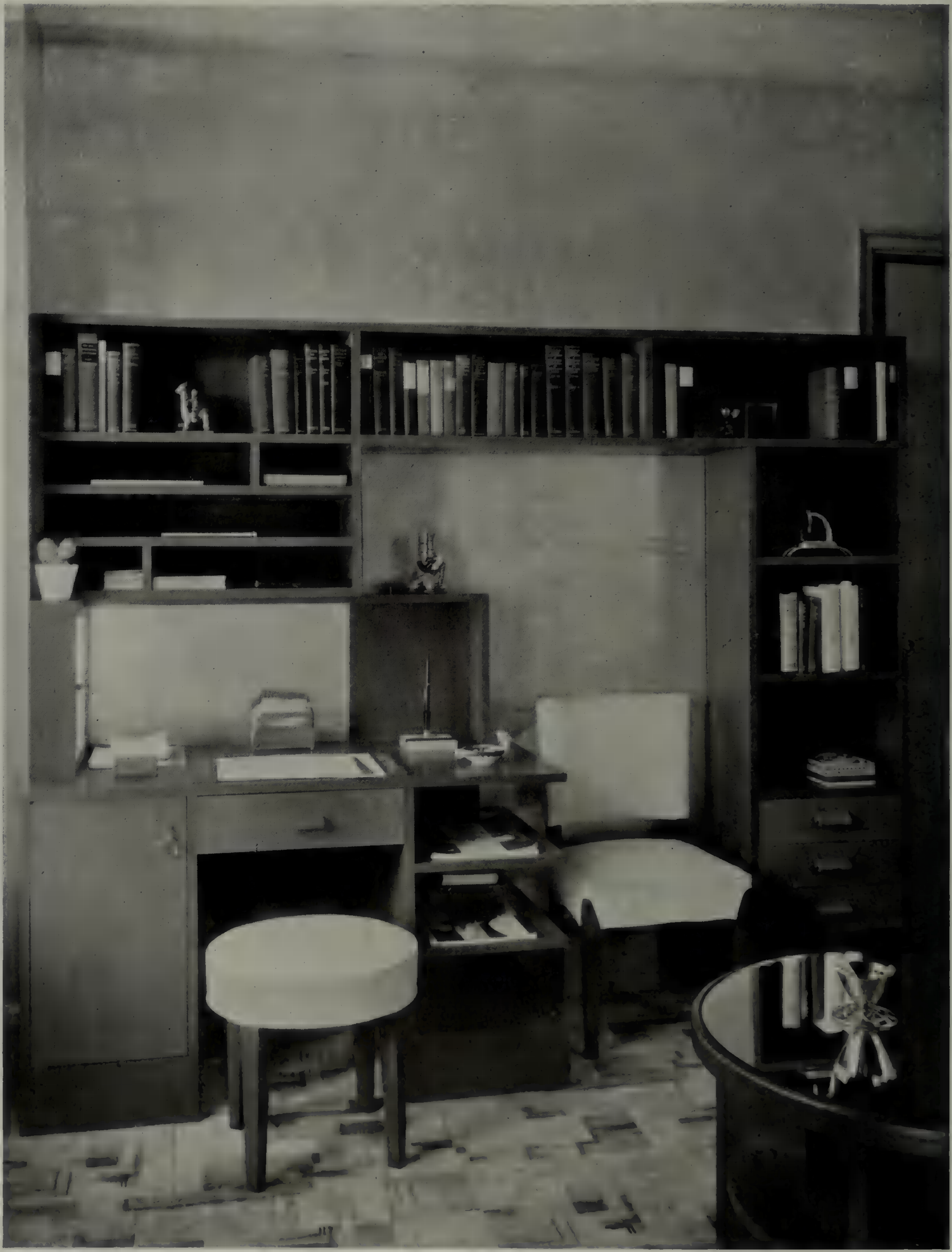


Photo. Van Anda

SITTING ROOM

APARTMENT FOR MRS. O. R. SOMMERICH, NEW YORK CITY

WOLFGANG AND POLA HOFFMANN, ARCHITECTS

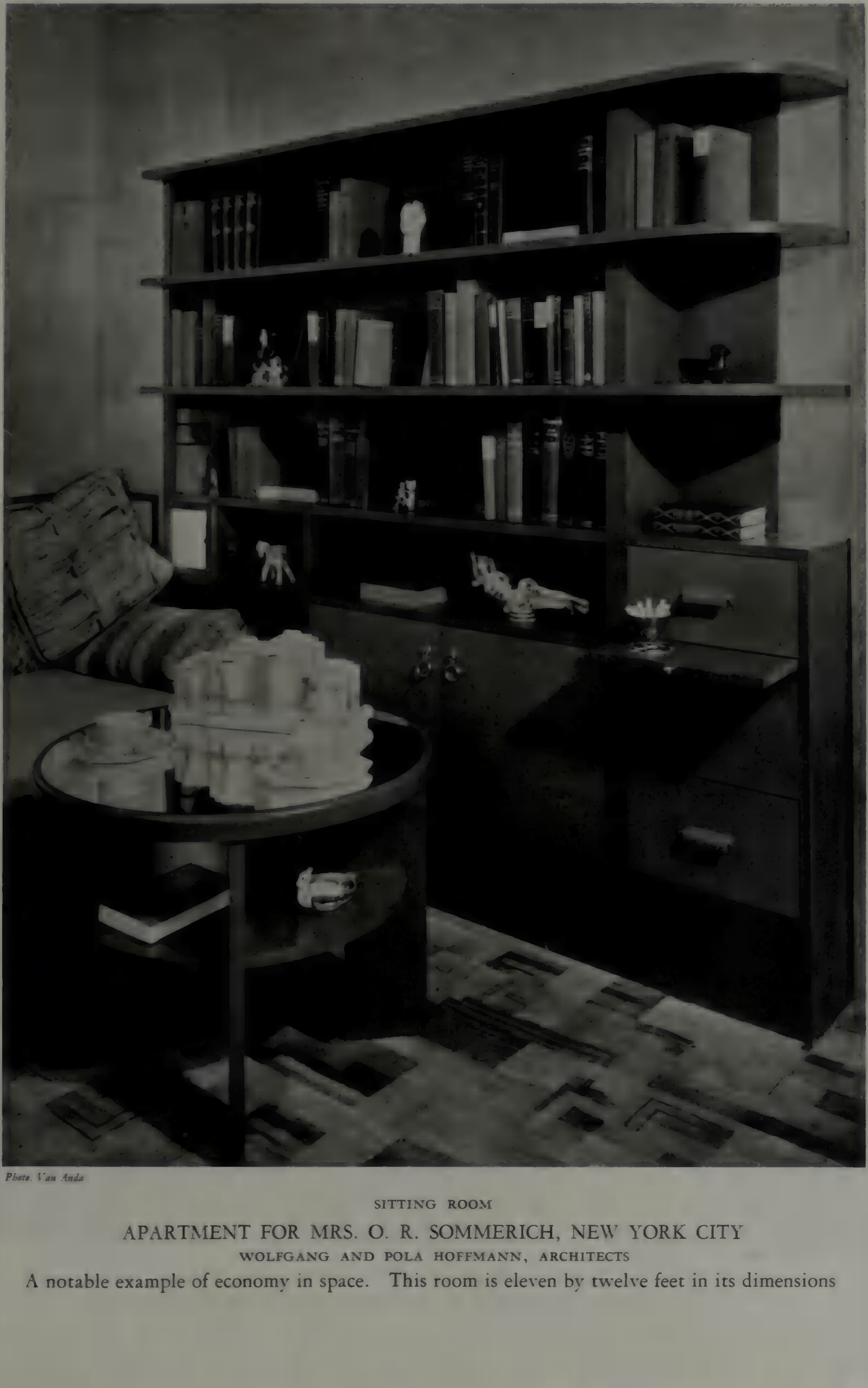


Photo. Van Anda

SITTING ROOM

APARTMENT FOR MRS. O. R. SOMMERICH, NEW YORK CITY

WOLFGANG AND POLA HOFFMANN, ARCHITECTS

A notable example of economy in space. This room is eleven by twelve feet in its dimensions

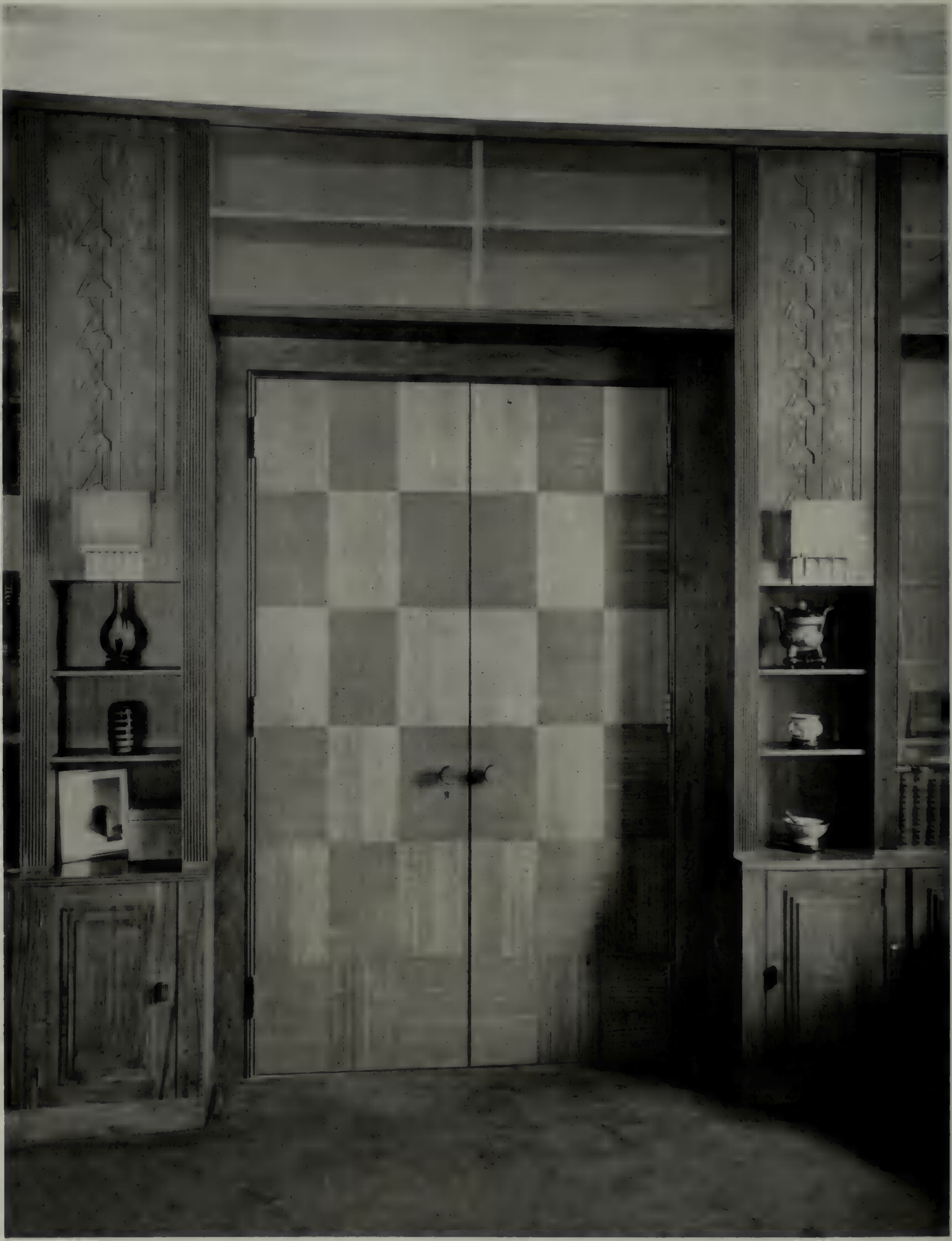


Photo. Sigurd Fischer

LIBRARY DOOR

CHARLES J. LIEBMAN'S APARTMENT, NEW YORK CITY

BUCHMAN AND KAHN, ARCHITECTS

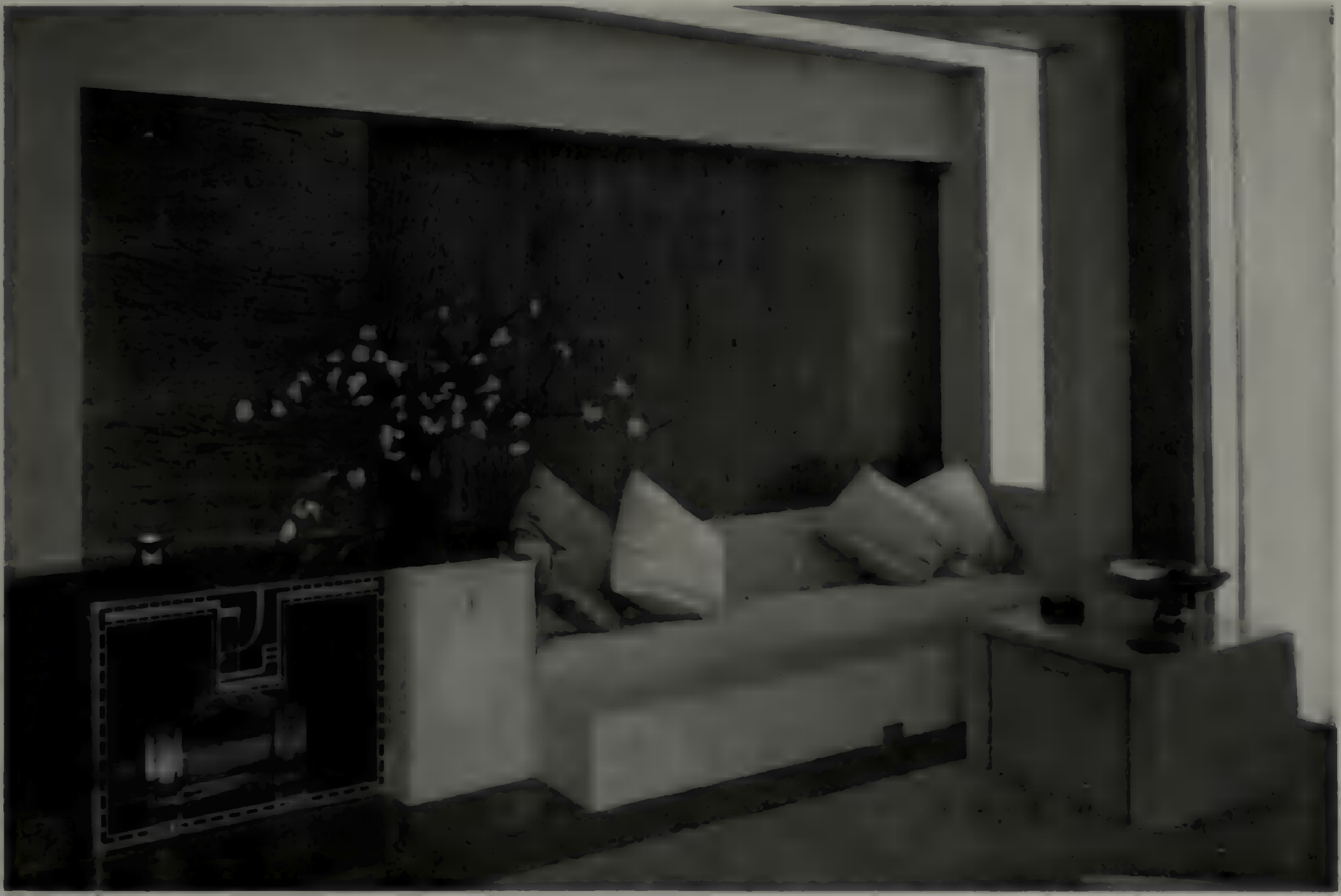


Photo. Danielson

APARTMENT INTERIOR, NEW YORK CITY
WHITMAN AND GOODMAN, ARCHITECTS

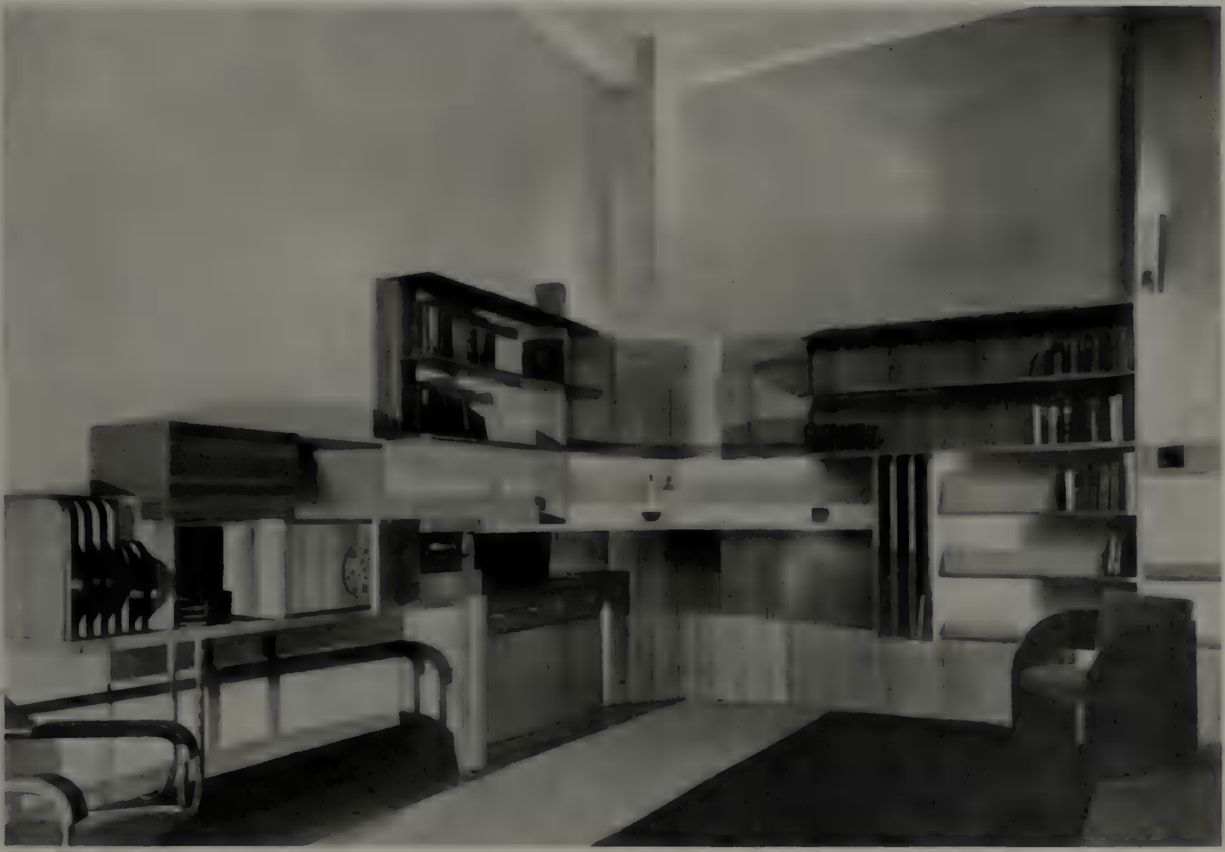


Photo. Worsinger

APARTMENT FOR MR. HERZBERG, NEW YORK CITY
HOWE AND LESCAZE, ARCHITECTS

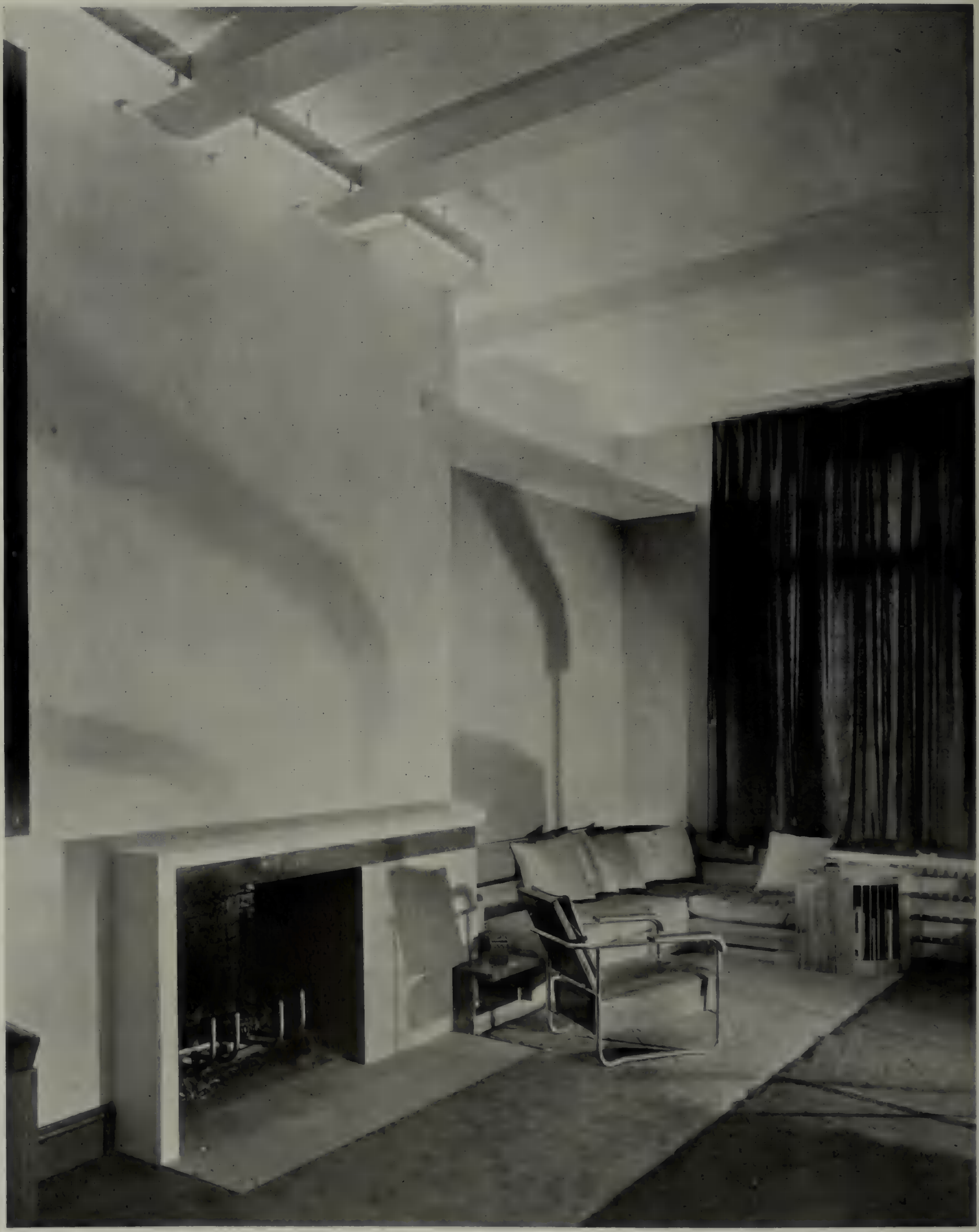


Photo Worsinger

APARTMENT FOR MR. HERZBERG, NEW YORK CITY

HOWE AND LESCAZE, ARCHITECTS

COOPERATIVE HOUSING IN DENMARK

BY L. MARNUS

The first cooperative society in Denmark, *Arbejdernes Byggeforening*—The Workmen's Building Association—was founded in Copenhagen in 1865 by a body of workmen who carried into effect the idea of a physician named Ulrik. The aims of the association were (and are still) partly to act as a savings bank for its members and partly to build sound and well-arranged houses which become the property of the members on profitable terms. Each member contributes two kroner monthly for a period of ten years, after which he is at liberty either to withdraw his money with the accumulated interest of 4½% per annum or to leave his money standing and be entitled to a continuous participation in the annual distribution of dividends and in the drawing of lots for the houses.

It may seem a disadvantage for the members to have to wait until they win the lottery before they secure a house but the number of members that want houses far exceeeds the building capacity of the society. It seems, therefore, that no other system would be more successful, since it is in the interest of the association always to have new members joining in the greatest numbers. Moreover, the members receive the highest rate of interest on their invested money that it would be possible to obtain from any savings bank. A member is entitled to take part in the lottery when he has been a member for half a year and has paid in at least twenty kroner ($5.50). The winner of a house becomes the owner after from twenty-five to thirty years. During that period he pays from fifty to sixty kroner ($15.00) yearly in addition to the estimated rent of the house. The payments vary a few kroner, and the years vary in number as well, according to the cost of each group of houses. The estimated rent of the house—that is, the sum at which the house would rent ordinarily—is always low and less than the owner would have to pay for a similar dwelling anywhere else.

According to statements issued by the association, a two-storied house with a mansard roof and containing three flats (each of which consists of two rooms and a kitchen) has been built for 13,600 kroner ($3,600); and the owner is paying fifty-six kroner yearly for a period of twenty-eight years amounting, with interest, to about 2,800 kroner. To this must then be added the first ten years' membership subscription (two kroner a month) which, with interest, amounts to about 300 kroner. Thus, this member will become the owner of his house for 3,100 kroner—or about $850—this being the actual price paid for a house worth $3,600. After twenty-eight years, he occupies the house rent free and, in addition, draws a good profit by letting out that part of the house he does not occupy himself.

The association, since its formation, has erected no fewer than 1,500 houses containing about 4,000 flats. The houses are mainly in rows. The earlier-built houses are mostly two-storied, having a flat on each floor consisting of two rooms and a kitchen. In the attic are three rooms for common use and there is a basement under the whole house for washing and storage. The later-built houses have a mansard roof in which is planned a third flat. The flats also have been increased in size and consist of three rooms and a kitchen. All the houses have front and back gardens.

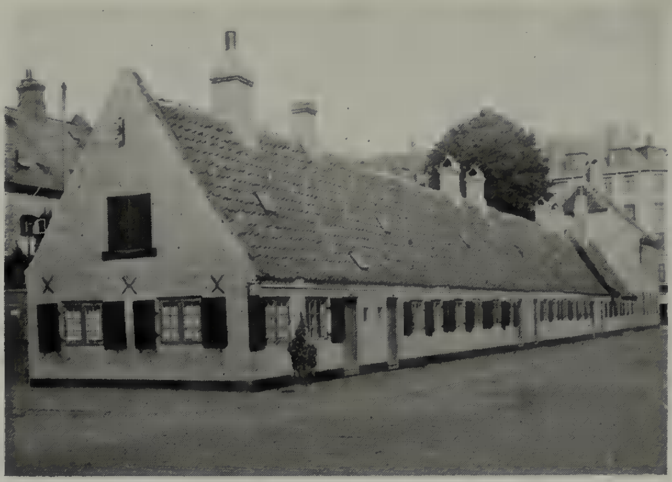
Toward the end of the last century and the beginning of the present, building societies sprang up like mushrooms in all parts of the country, in many of which the cooperative spirit was unfortunately lacking so that, no exception being taken to members using their property as a basis for speculation, the houses were sold and resold at ever increasing prices and, eventually, came into the possession of well-to-do people.

A stop to this evil was the formation of *Dansk Havebolig-Forening*—Danish Garden City Society, 1912. This society built good and cheap houses for its members but reserved to itself the increment of the property, should a member resign from the society and from his house. An instance of this kind of cooperation is the garden city *Grondalsvaenge*. A member of this society contributes twelve kroner a month until he has paid in 550 kroner ($150). He is then entitled to a house and has nothing more to pay before the rent comes due. The members never become owners of their houses; still, they gain in not having to contend with a landlord's profit.

Moreover, an annual deduction of the mortgage is included in the rent, the latter diminishing gradually and so rapidly that in thirty years it is less than five dollars a month. In this way, if the husband dies, the society acts as a premium-free support for the widow.

The houses are either single or semi-detached. They consist mainly of a small hall, two rooms and a kitchen on the ground floor; three bedrooms on the top floor, and spacious rooms for washing and the storage of fuel and victuals in the basement. The gardens around the houses vary from 4,000 to 6,000 square feet.

Arbejdernes Andelsboligforening (The Workmen's Cooperative Housing Society) is the largest cooperative housing society in Denmark. It belongs to the group of rational housing societies that does



HOUSES OF NYBODER, COPENHAGEN
EARLY 17th CENTURY HOUSING SCHEME

This type of housing superseded a still older one, built by King Christian IV. This sovereign wanted his naval staff at call, so he housed them near at hand, in one-story houses with ceilings six feet from the floor, and with the loft reached by a rope

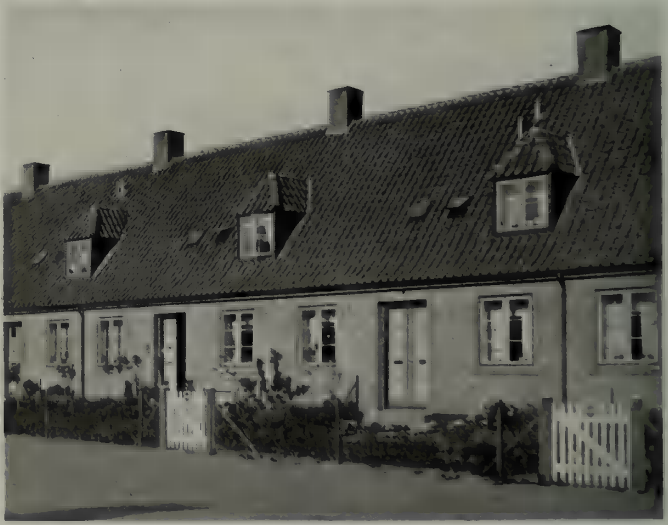
not permit its members to sell their shares, thus eliminating speculation. The principle upon which the society is built is mainly that of the Rochdale. A member subscribes a share of forty kroner ($11.00) and when he obtains a flat, he pays a deposit usually equivalent to a year's rent. This deposit and the share always belong to the member and yield an interest of 4%. They are returned in full if the member resigns from the society, or moves. The society comprises a number of branches all over the country and for each group of buildings built, a branch is created. The branches have no economical responsibilities toward one another and are accountable only to the general society which always has the right of possession to the plot and the buildings. The houses are financed by loans from money institutions and from the Government. Loans have been secured to as much as 90% of the cost of the building, the remaining 10% being acquired by the shares and the deposits of the members. The society has chiefly confined itself to the building of large groups of flats of from two to five rooms so as to meet any requirement.

An exceptional branch, however, is the garden city of Brönshöj which is beautifully situated on a site sloping towards a small lake around which a garden has been designed as part of the layout. The cooperative ideas of this society are far in advance of those of any other society, inasmuch as it owns two large brickworks and executes the carpentry, joinery, painting and other work in connection with the erection and repair of the buildings. In each group of houses are all kinds of shops which are also conducted on the cooperative principle.

Another large housing society is *Köbenhavns Almindelige Boligselskab* (The Copenhagen General Housing Association). This society, although its building activities have been very extensive, acts merely as organizer for the building operations. Each branch is an independent cooperative as soon as its group of buildings is completed. From that moment, the branch has no obligation either to the administration or to other branches. Among the society's—or administration's—numerous undertakings is *Bakkehusene*, a modern layout with rows of houses built around a park. These houses are built to nine different plans and consist of four or six rooms besides a kitchen and scullery. They have large gardens, both to the front and back.

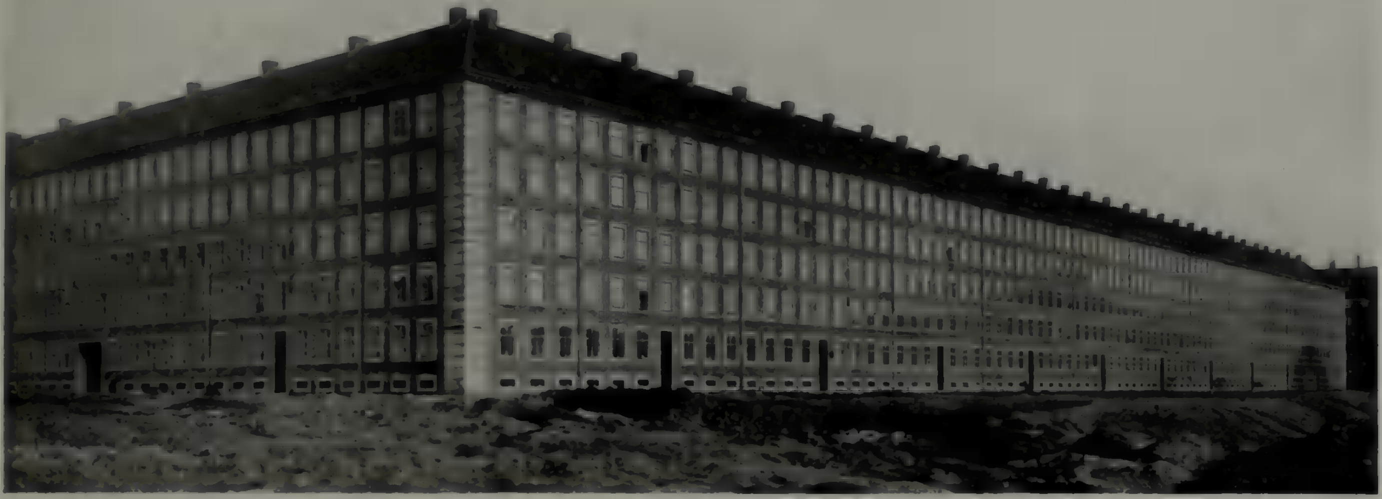
During the last ten years many efforts have been made to produce small dwellings which must be as cheap and comfortable as possible and, at the same time, of a design to harmonize pleasantly with their surroundings. With this aim in view, the society of the garden city, *Studiebyen*, invited architects to design small but well-arranged and economical houses of various types. The experiment proved to be a great success as no fewer than twenty-five architects contributed to the erection of about two hundred houses.

These houses are examples of the single and double dwelling type houses as well as row houses. As a comment on the general satisfaction with a small home, it may be said that most people regard the detached one-family house the ideal home yet it is the most expensive to build and colder to live in. The double house is but little more expensive than the house of a row and it satisfies people's want of being able "to walk around their own house."



HOUSING SCHEME IN THE GARDEN CITY, STUDIEBYEN

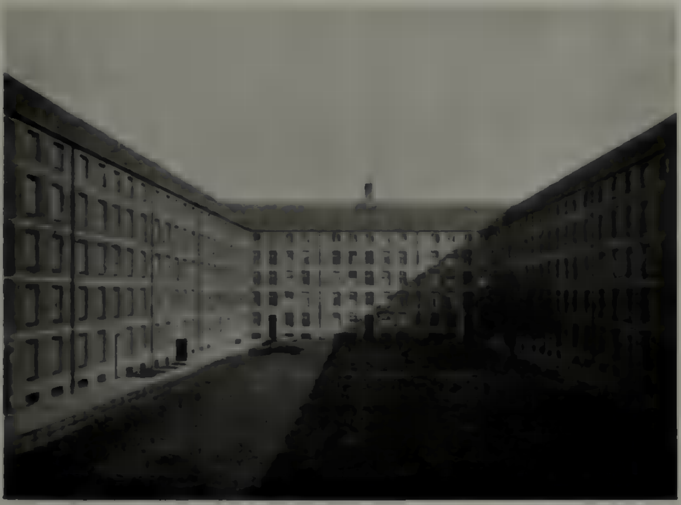
P. NIELSEN, AUG. RASMUSSEN AND RORDAM-JENSEN, ARCHITECTS



COOPERATIVE APARTMENT HOUSE SCHEME, COPENHAGEN

KAY FISKER, ARCHITECT

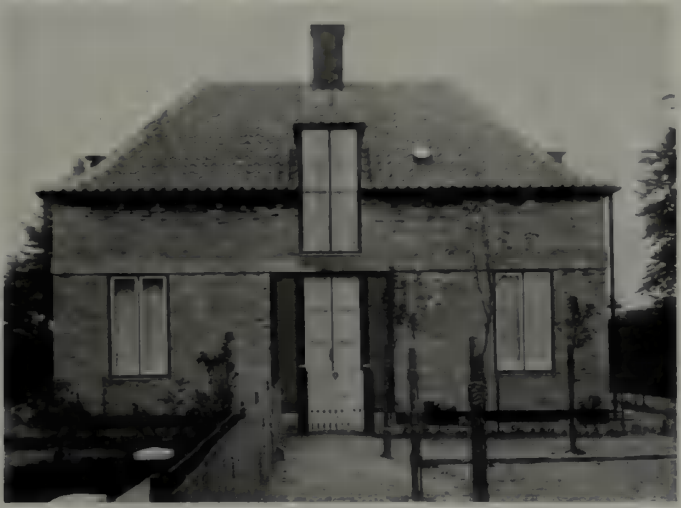
An extension into the multifamily field of the activities of the Danish Cooperative housing societies



COURT OF APARTMENT HOUSE ABOVE

KAY FISKER, ARCHITECT

These projects are financed by loans both from money institutions and from the Government, up to a high proportion of their value



TYPE OF SINGLE HOUSE IN GARDEN CITY STUDIEBYEN

KAY FISKER, ARCHITECT

An example of small but well-arranged and economical single houses built for the cooperative society of this garden city

POSSIBILITIES FOR HOUSING RESEARCH

Photo. Rider and Driver

The house, like the carriage, has reached a high state of development . . . along came the automobile . . .

"It is a commonplace that a man buying an automobile to-day pays about half the price he would have had to pay a few years ago, and gets twice as good an article. If, however, he has to build a home, he will find the conditions just about reversed. The only reason for this absurd situation is that one industry has profited by first-rate scientific and engineering thought, and the other has not. It certainly cannot be laid to the rising cost of material and labor, since this has affected both industries alike. A foundation devoted to the study of housing problems and equipped to experiment in different types of design and construction would have the opportunity to make a contribution of inestimable significance toward the improvement of present conditions."—Annual report of Mr. Frederick C. Keppel, President of the Carnegie Corporation.

If there is a possibility that technical research would reduce houses to the same production basis as automobiles, one wonders why foundations and philanthropists interested in housing have not used this method of seeking a solution. John D. Rockefeller, Jr.'s advisors, Julius Rosenwald's advisors, the City Housing Corporation, and the City and Suburban Homes Company* have invested millions in model housing but have to date definitely and purposely avoided research into new construction methods as an aid to solving the housing problem. There are two reasons for this: First, sociological research has been confused with and substituted for technological research. For example, a sociological research was made for the purpose of obtaining information on which to base the design of a large "model tenement." The research developed the fact that the families for which this "model tenement" was to be built could not afford to rent a modern four-room apartment. It was also found that at the present time they were living two families to one apartment and that they averaged one child per family. Since the rent-paying ability of this group made it impossible (*under present construction methods*) to build separate apartments for each family, a very efficient plan was worked out which gives the maximum privacy possible—*with two families and two children in four rooms*. This development has good sanitation, light, air, gardens, etc., and is entirely commendable—under present construction conditions. This is sociological research and a *practical* solution of a social problem but not a solution of an engineering or production problem.

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* Reference must be made to the Forest Hills experiment of the Russell Sage Foundation. I consider this in the nature of an experiment rather than a scientific research such as proposed by Dr. Keppel, the difference being that in the one case there is a systematic search and research for a solution to a definitely stated problem with a list of requirements which must be met if the problem is to be solved; the other is an experiment to find out if a theory will work. At Forest Hills no detailed analysis of the problem and requirements was prepared but it was assumed that precast units would solve the housing problem, and experiments were undertaken on this basis. This has been true of the experiments of Thomas Edison and others who have tried to prove a theory instead of starting with a study of the basic requirements and trying to find a solution which would meet these needs.

The second and *major reason* for failure to conduct technological research as a means of solving the housing problem is the sincere belief on the part of certain people that very little if anything can be accomplished. For example, Mr. C. H. Holmes, president of the City and Suburban Homes Company, recently stated that the comparison of the house with the automobile was not sound, since the automobile was a recent invention and therefore, rapid improvement could be expected in it, accompanied by considerable reduction in cost, while the house had developed over a period of thousands of years and had been developed to a very high state of perfection.

Perhaps Mr. Holmes is right. The house, as we now think of it, can probably not be improved very much, certainly not to the extent suggested by Dr. Keppel in comparing it with the automobile. But I believe that if we were to compare the *means of transportation* with the *means of providing shelter*, we would have a better analogy. Before the introduction of the automobile, the horse and buggy had reached a very high state of development. There were no major improvements in these in the last century. The introduction of steel springs for reducing the jolting and the adding of rubber tires and other minor variations in style had slight effect on the transportation problem.

Looking at the problem of providing shelter, we may compare its development at the present time to that of the horse and buggy. Such attempts as have been made to improve this horse and buggy through use of larger brick units or substitution of concrete units has had slight effect on housing as a problem. The substitution of steel frame for wood frame has not altered the fundamental horse and buggy characteristic of the present house. Any real solution will involve as radical a transformation from the present type of house building as the automobile was a radical change from a horse and buggy.

As Mr. C. F. Kettering, vice-president of General Motors, in charge of research, says, "Do you remember the first automobile? Manufacturers weren't thinking so much of making automobiles. They were making horseless carriages. A carriage drawn by a horse was the pattern of transit fixed in the mind. And so we went on making carriages, even though the horse was no longer hitched to them. It took years before we began making automobiles along lines conforming to their special utility. When the bicycle was first invented, men had in mind a substitute for a horse. So they built a small wooden horse—like the ones we see in the merry-go-rounds—with a wheel between the front legs and another between the hind legs. It was a horse on wheels."* Is it not possible for us to benefit by our experience in the development of transportation and solve the housing problem in a logical manner rather than clinging to traditions? To be specific, why do we need 12-inch masonry walls in our buildings when other forms of shelter, such as ships, automobiles, airplanes, have walls some of which are only 1/100 of an inch thick?

Let us take a specific case. The Chrysler Building has aluminum spandrels backed up with masonry. Why should not the metal spandrel be backed up with 1 or 2 inches of insulation and lined on the inside with plaster or metal? If the interior partitions are to be plastered, the logical thing would be to apply metal lath and plaster to the insulation. If, on the other hand, the building is to have metal office partitions, and an ever increasing number of buildings are thus divided, the logical interior finish for the spandrel and wall panel would be metal to correspond with the office partitions. If the building is to be used for housing, the metal can be given a glaze, enamel, or lithograph finish, or left natural. A wall such as this would cost from ½ to ⅓ as much as present masonry construction and give a 90 to 95% reduction in weight. Possibly some material other than metal may be developed. Promising experiments are being made on a variety of materials but it will require research to find the solution. (See page 289.)

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* *The American Magazine*, January, 1930.

The suggestion of thinner walls immediately brings up several major questions. First, will it not lose more heat than a thicker wall? An insulating metal wall 1 2/10 inch thick, recently finished in Holland, has an insulating value equivalent to 17 inches of brick. (See page 384, The Architectural Record, October, 1929.)

Second, building codes will not permit walls less than 8 or 10 inches thick: but several buildings in New York already have walls 3 or 4 stories high ¼ of an inch thick—glass set in steel frames. (See page 382, October, 1929.)

Third, thin walls would not stand the wind pressure. Those who base their thinking on tradition sometimes overlook the fact that more than 50% of the wall area of any of our tallest buildings is now ¼ of an inch thick—glass.

Fourth, practical builders object on the grounds that labor unions would not permit such a construction, forgetting that metal office partitions are now used.

Fifth, one of the outstanding objections from housing experts is that the wall cost is a very small part of the total cost. This is undoubtedly true, but the same method of solution which is applied to exterior walls can be applied to partitions and floors.

Equipment may likewise be simplified. Lewis Mumford pointed out in the January issue of The Architectural Record "with respect to other parts of the house—the fixtures, the mechanical devices, the finish, it remains true that while *slight economies* are possible through further standardization, a good part of these items is already produced by mass methods and most of the possible economies have been rung out." Again using the analogy of the automobile, Kettering says, "When we want an automobile we do not have a dozen different dealers deliver steel and wheels and tires and springs and bolts and nuts to our back yard (all mass produced), and then have a mechanic or two come in and put them together into an automobile. What would an automobile cost built that way? Yet that is the way we build our house now—just as it has been done for thousands of years—slowly, piecemeal, by hand." To arrive at the same degree of efficiency as the automobile, all the various heating, plumbing, wiring, refrigerating and cooking units should be incorporated in one single unit which would be completely fabricated in a plant on the same basis as the automobile.

If the same brains, energy and money were expended on a solution of a "machine à habiter" that has been expended on the automobile, we would doubtless have a production approaching the automobile, one that, compared with our present antiquated construction methods, would be "twice as good at half the cost."

Robert L. Davison.

Detail from
Preliminary Sketch
APARTMENT IN CHICAGO
Bowman Brothers,
Architects

ARCHITECTURAL RECORD
TECHNICAL NEWS AND RESEARCH
MARCH · 1930

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APARTMENT HOUSE DESIGN
TO MEET
FAMILY NEEDS

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By ROBERT L. DAVISON

With the cooperation of Apartment House Operatives, Authorities on Playgrounds and Children's Activities and Architects specializing in School Planning.

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NEXT MONTH, TECHNICAL NEWS AND RESEARCH: ECONOMICS OF OFFICE BUILDING DESIGN

APARTMENT DESIGN TO MEET FAMILY NEEDS

BY ROBERT L. DAVISON

Apartment houses must be designed to meet the present day needs of children, men and women

Very little attention has been paid to the proper planning of apartment houses to meet the needs of children as affected by home conditions under the present economic set-up.

To discover these family needs and the present solutions to these new requirements, we have consulted with, and received a great deal of cooperation from, the following authorities on recreation, education, home life and the care of infants and children:

From Columbia University, Benjamin R. Andrews, Professor, Household Economics; Winifred E. Bain, Instructor in Kindergarten Education; Grace Langdon, Instructor in Kindergarten Education; E. Mae Raymond, Instructor in Kindergarten Education; Mary M. Reed, Assistant Professor Education.

Roy Smith Wallace, Playground and Recreation Association of America.

In addition, we have had the cooperation of Hacker and Hacker, architects, who specialize in school work, in the preparation of a nursery and kindergarten unit for inclusion in the apartment house. This unit was worked out in cooperation with the above group of specialists and has received their hearty approval.

We wish to acknowledge the very kind assistance of Dr. C. V. Paterno in offering practical suggestions and checking the proposals from the standpoint of one of the largest apartment house operators in New York City.

We also wish to express our appreciation of the very helpful assistance of Wallace W. Beicheim and Max Roshovsky of the Columbia School of Architecture.

New social and economic balances due to the transferring of the work formerly done in the home, such as sewing, washing, baking, teaching and care of children, to centralized organizations of specialists is making it necessary for women to go into industry* to assist their husbands in getting money to pay for these services which were previously performed by women in the home.

This necessitates centralized care of children and housekeeping services. The architect should recognize these facts and plan accordingly.

I. CHILDREN

Very little attention has been paid to the proper planning of apartment houses to meet the needs of children as affected by home conditions under the present economic set-up.

Objection to children in apartment houses may be overcome through planning special care for them and segregating their entrance from that used by the adults.

Children, through lack of play space, clutter up the entrance with their go-carts, bicycles, and scooters; make a great deal of noise; muss up the halls, and certainly prevent any attempt at that air of refined celibate gentility which is such an asset in the renting of an apartment house.

These objections may be largely overcome by a separate children's entrance, preferably on another street or, where this is impossible, a side entrance. The entrance lobby should have lockers for toys, athletic equipment, roller skates, rubbers, overshoes, etc., and a place for scooters and bicycles.

This lobby should be attractive enough for the children to feel that it is a privilege to have their own entrance. If possible, the entrance should have access to the main stairs so that the children can reach their apartment without going through the main entrance lobby. If elevators are used it should be possible to have separate entrance to them.

If this segregation is effective and the building is properly soundproofed, practically all objections to children within the apartment house are removed. Since there is generally a scarcity of apartments which will take children, those apartments designed to meet the needs of families should be a profitable investment.

Any special provision for the care of children within the apartment house should be considered as an integral part of the community recreation system and should fit into a general program. It is probable

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* ''The number of gainfully employed women in the four cities, 38446, constituted over *38 per cent of the entire female population* 14 years of age and over reported in these communities.

''The four cities analyzed in this report from the standpoint of breadwinning women may be taken as more or less representative of the country as a whole in the matter of the family status of the over eight and a half million breadwinning women in the United States.

The breadwinning matrons (women who were or had been married) constituted approximately 55 per cent of all the women included [14 years of age and over]. Almost four-fifths of all the gainfully employed women who were, or had been, married were maintaining a home, and over nine-tenths of those with wage-earning husbands were caring for a household in addition to the performance of breadwinning occupations.'' Family Status of Bread Winning Women Bulletin of the Women's Bureau, No. 41 U. S. Department of Labor, Wash. D. C.

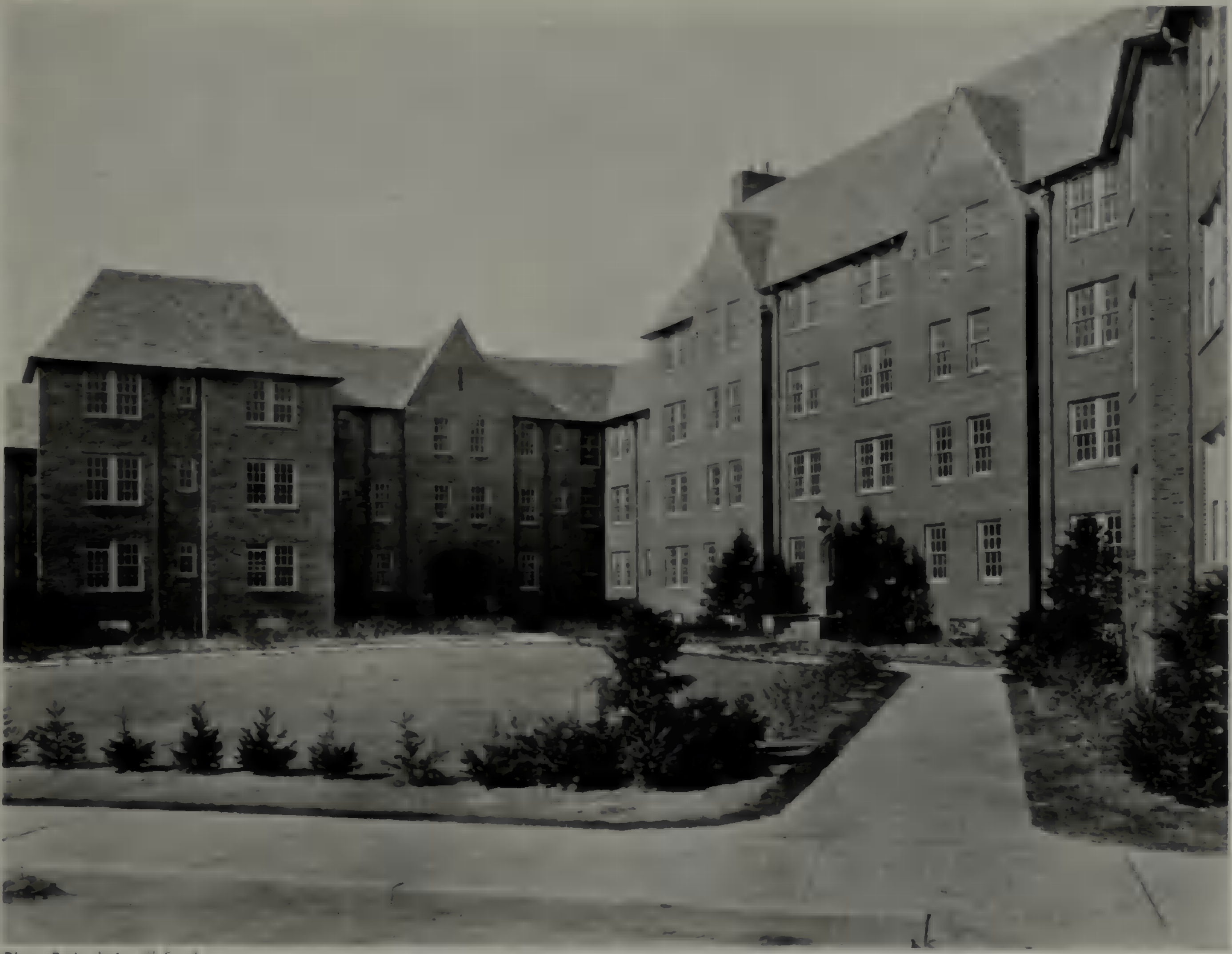
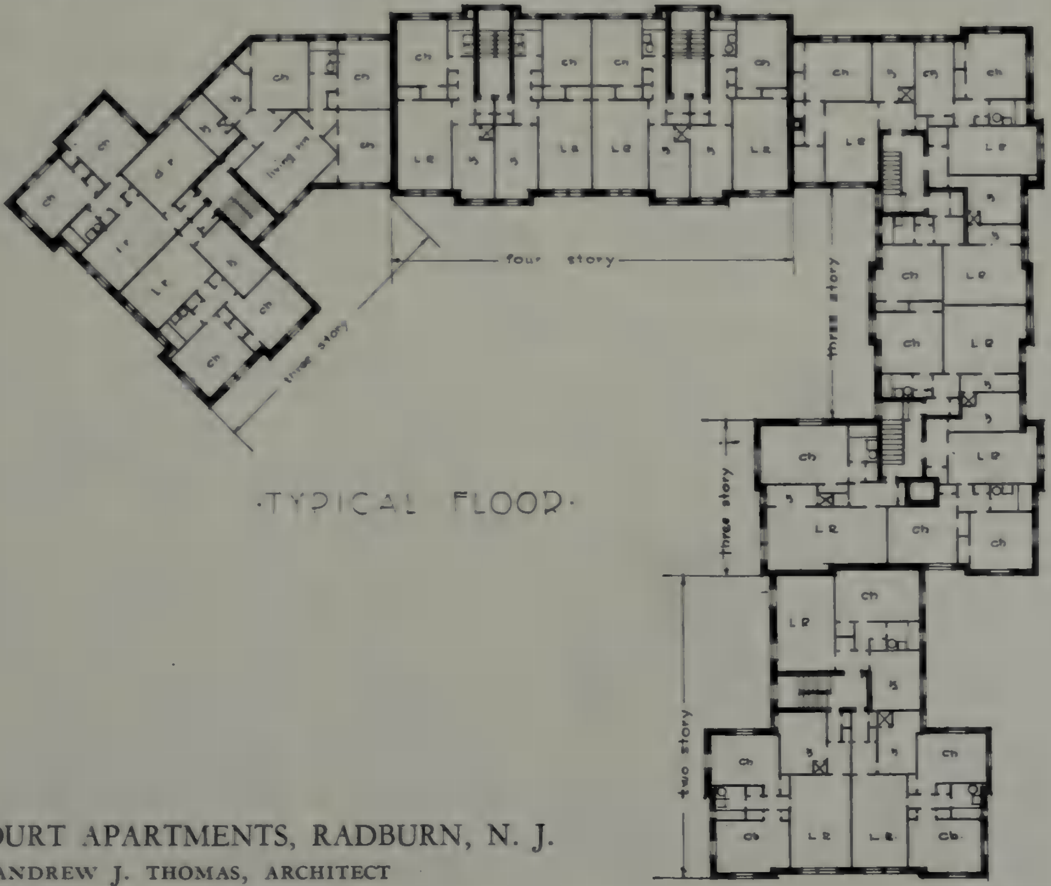


Photo. Richard Averill Smith



ABBOTT COURT APARTMENTS, RADBURN, N. J.

ANDREW J. THOMAS, ARCHITECT

BUILDING PERSONNEL AND EQUIPMENT REQUIRED FOR CHILDREN OF VARIOUS AGE GROUPS

Question	3 Weeks–18 Mos.	18 Mos.–3 Yrs.	3 Yrs.–4 Yrs.	4 Yrs.-5 Yrs.	5 Yrs.–6 Yrs.
Number of children in unit	Not over 20	Not over 20	Not over 25	Not over 25	Not over 25
Needs of children	Sleep, food, care, educational play	Apparatus for increased activity	Individual ownership and use of materials. Need individual lockers	Addition of constructive activities such as woodworking	Increase of intellectual pursuits. Social grouping calling for nooks, etc.
Schedule of hours of attendance	Approximately 7 A.M. to 6 P.M. depending on working hours when mothers are employed outside of the home. Six days a week all through the year.				
Number of attendants in each unit	2 fully trained 2 assistants	2 fully trained 1 trained maid	2 fully trained 1 trained maid	2 fully trained	2 fully trained
Needs of attendants	Office and rest rooms	Office and rest rooms	Office and rest rooms	Office and rest rooms	Office and rest rooms
Kitchen help	Food prepared by nurses	Nutritionist, cook and maid	Nutritionist, cook and maid	Nutritionist, cook and maid	Nutritionist, cook and maid
Food, Service	Formulae, kitchen	Central cooking kitchen	Central cooking kitchen	Central cooking kitchen	Central cooking kitchen
Playground, indoor, size	Not needed if nursery is solarium	On rainy days, use gym for older people			
Outdoor, size	Not needed	Roof garden with slides	Roof garden with slides	Roof garden with slides	Roof garden with slides
Use of Ultra-violet ray glass		Desirable	Desirable	Desirable	Desirable
Accident prevention	Fire prevention, safety cribs, window guards	Fire prevention, safety cribs, window guards Protect skylights on roof	Fire prevention, safety cribs, window guards	Fire prevention, safety cribs, window guards Protect skylights on roof	Fire prevention, safety cribs, window guards
Cost per child per day	From $1.50 to $2.50 will include rent of nursery space, overhead on equipment and salary of attendants. Food will be extra				

that at first the parents will have to pay for the nursery school and kindergarten within the apartment house but eventually this will probably be incorporated within the public school and recreational system.*

Children, Two Weeks to Six Years

The care, recreation and education of children from two weeks to six years of age can best be handled in small nursery and kindergarten units (see opposite) within a large apartment house** or as part of a group of smaller buildings.

Children, Six to Eighteen Years Old

From the age of six to twelve children need play spaces of five acres or more, and from twelve years on, fifteen or twenty acres. As it is generally impractical to furnish so large a play space in connection with an apartment house, the recreational needs of children within this age group must be provided by the city as a part of the public school, playground or park system. The article by Mr. Henry Wright on page 235 of this issue indicates the relation of the playground to the school and to the apartment. For this age group it is impractical to have small school units within the apartment house. Large schools are needed to provide for proper subdivision and specialization. The only special provision within the apartment house generally needed for most children in these age groups is a separate entrance lobby.

Children over Eighteen Years Old and Adults

From the ages of eighteen years on, children may again be considered as young adults; and then recreational and social activities become a problem for consideration in the design of an apartment house which is intended to meet the family needs.

Adults will be interested in the individualistic games, such as hand ball, which can be played in a limited space and therefore can be provided for within an apartment house. Provision should also be made for dancing and other social activities. See page 274.

II. NURSERY AND KINDERGARTEN

Trained nurses and teachers can take better care of infants and children than the average parent. Provision of such care during the day would not deprive the child of the influence of parental affection but would probably make the contact with the parent more valuable and pleasant because the mother would not be tired out with continuous care of the children.

There is the additional advantage that such care permits the mother more freedom. There is a very considerable increase in the number of wives who continue to work after marriage.

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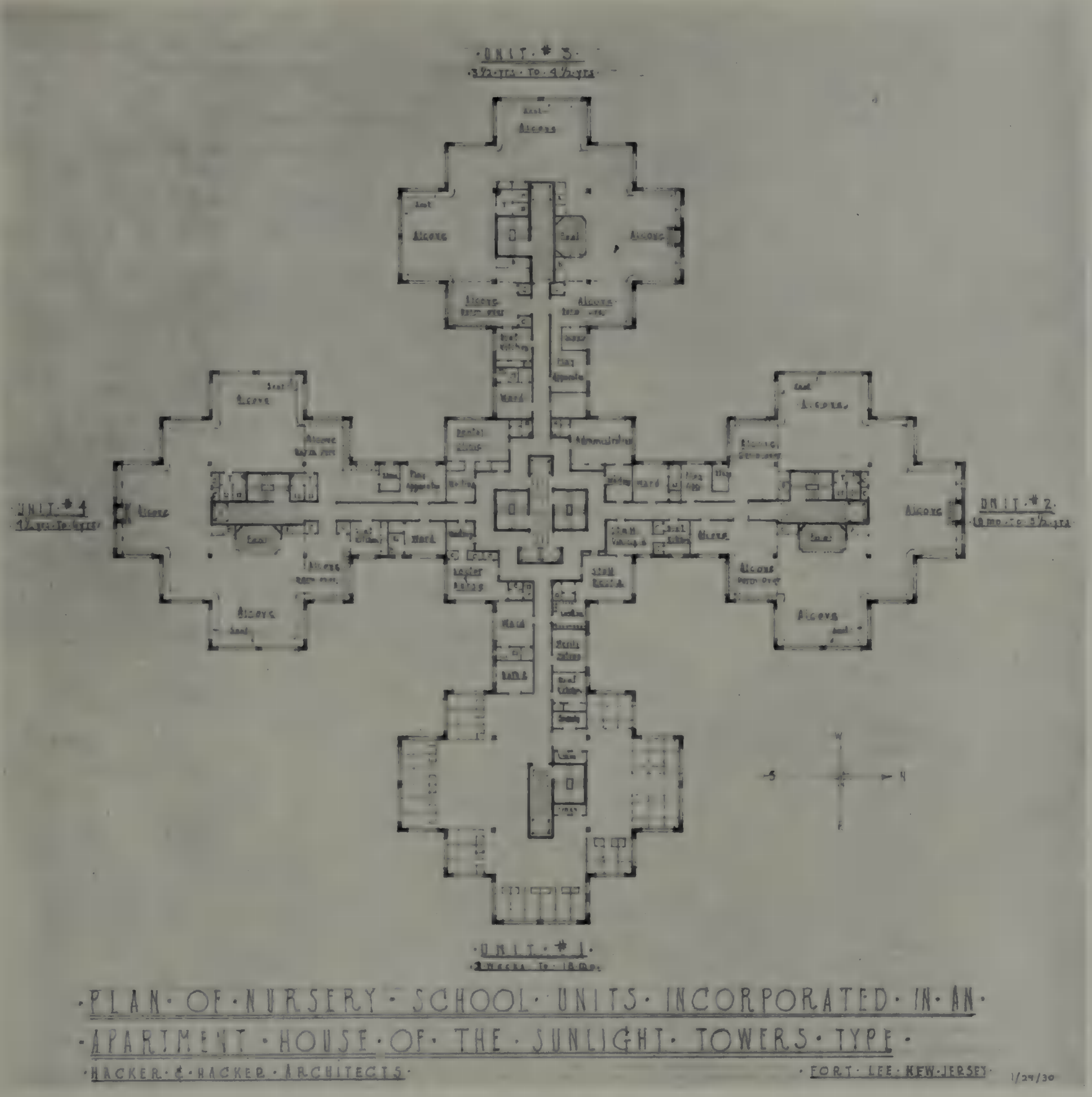
* Roy Smith Wallace, Playground and Recreation Association of America.

** Also article by Henry Wright in this issue.



(See description below)

The units shown above are designed to take up the entire sixth floor of the apartment house scheme. The plan of the apartment lends itself readily to four age distributions. (1) Those from two weeks to eighteen months. (2) Eighteen months to three and one-half years. (3) Three and one-half years to four and one-half years. (4) Four and one-half years to six years. Each of these four units occupies a separate wing radiating from a central administrative wing. This central administrative wing is of vital importance in the success of the project. It contains the doctors', nurses', and dentists' suite of offices which are essential to the four units. Every mother realizes what it means to have a staff doctor and nurse efficient in both the prevention and detection of illness. Few mothers would be willing to have their children associate with one that has just returned from exposure to a contagious disease unless examined by a staff doctor.

Here are found also the staff dining and rest rooms and general administrative rooms.

The infant group has been provided with individual cubicles for the babies, while the room has been oriented to secure a maximum of sunlight for any possible sufferer from rickets. These cubicles have window ventilation with a heavy screen deflector to do away with the possibility of draft. The room is heated by a unit system which includes ventilation by means of air movement in hot weather, humidifying and air filtering. The accessory facilities such as isolation ward, formula and diet kitchen, bathroom, sterilizing room and storage supply space for linen, have all been provided. Play space has been provided both in the room and on the roof as well as storage space for play materials.

The nursery groups No. 2 and No. 3 have some additional facilities. This group has provisions for rest and relaxation in a two-section balcony. In this room a child that awakes may go down into the main room and play without awakening the other sleeping children. They, too, have toilet, bath and storage facilities for play materials and diet kitchen. In addition the nurseries boast of the essential alcoves, a fireplace and an enchanting spatter-and-wading pool, which not only gives atmosphere to the room but has a definite educational value.

The kindergarten facilities reflect, with the increased growth of the child, the group instinct. Provision is also made for a child's special possessions in cubicles and storage space. One of these alcoves may be used in the advancement of a child's constructive or art impulse. A work bench and similar equipment is provided in one of these alcoves. We find here balconies to solve the rest problem, a diet kitchen for proper nutrition, and a pool and fireplace to lend charm to the room. Play space here, as in all the other units, is provided in the protected roof directly above the unit. The stairs give easy access to the roof where much of the large play apparatus can be utilized to advantage and stored when not in use.

A. NURSERY SCHOOL ROOM AND ITS EQUIPMENT*

The items noted below are selected to meet the needs of *twenty* children, two to four years of age, in a nursery school operating seven hours per day, five days per week, ten months per year.

Building Standards

1. A minimum floor area of 1,200–1,500 square feet should be provided for twenty children, in addition to outdoor play space.

2. *The rooms should be light and cheerful.*
   a. Window area should be at least 25% of the floor area, preferably more.
   b. Artificial lighting should be high and indirect.
   c. Walls should be of hard finish easily cleaned. They should be light tan, buff, or gray.
   d. Ceiling should be cream or white to reflect the light.
   e. Shades should be tan, buff, or gray to harmonize with the walls. They should be adjustable from the center.

3. *The floor should be smooth* without cracks and easily cleaned. Cement or wood overlaid with battleship linoleum is most desirable.

4. *The room should be well ventilated and heated.* Radiators should be placed in out of the way spaces. *Avoid using space under windows for radiators.* It is generally conceded that a temperature of 64° to 68° is desirable.

5. Elimination of injury. Stairways, fire escapes, elevator shafts; and medicine cabinets should be protected.

6. The rooms should be arranged conveniently for work and at the same time they should be attractive.

Bauwels

HOME FOR DEPENDENT CHILDREN
CARLSHAFEN, GERMANY
D. BORKOWSKY, ARCHITECT
Open air balconies are highly necessary for children

B. BUILDING EQUIPMENT FOR KINDERGARTEN

No.	*Materials*	*Standard for Selection*
20	Carpenter-built lockers (open), 36 in. high, 14 in. wide, 14 in. deep, 9 in. additional for hats, 9 in. additional for extra clothing. 54 in. total height.	Open lockers permit child to put away or get out his wraps with a minimum of adult assistance. The additional space above saves cupboard space elsewhere. Lockers should be equipped with one large hook on each side for hanging wraps.
	Shelves, low, open for blocks and play equipment. Length of shelves depends upon available space. 34 in. height overall, 20 in. deep shelves 14 in. apart.	Low, open shelves make it possible for the child to get his play materials independently. Shelves for play materials should be closely adjacent to play space so that the child does not need to go far for equipment.
	Cupboards — about 34 in. over all, 20 in. deep for play materials, shelves 14 in. apart.	Doors to cupboards should have catches which make it possible for child to open and close them without help.

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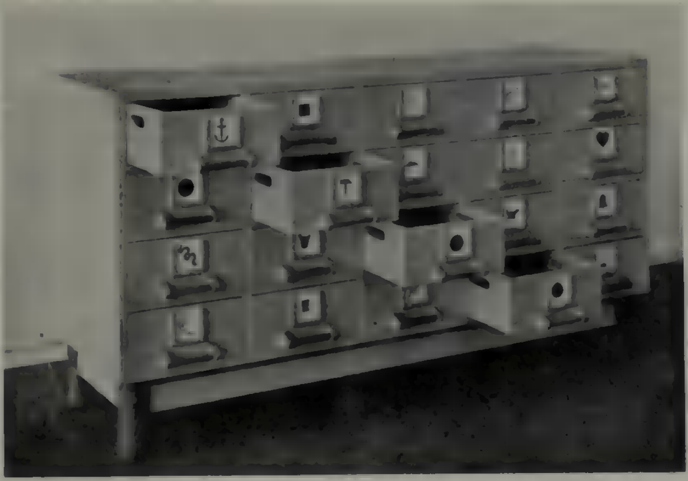
* From *Nursery School Equipment and Budget*, by Grace Langdon, Department of Lower Primary Education, Teachers College, Columbia University, May, 1929.

Cupboards, adult height for dishes, extra linens, etc. Often convenient to have large drawers with cupboards above.	Should be placed in space which cannot be utilized for play space, but as close as possible to the place where articles kept will be used.
Drawers	Children like to pull drawers in and out, and to put things in them. They should be in easy reach. Handles should be of a kind that child can take a hold of easily with *an overhand grasp*. (See right.)



CHEST OF DRAWERS FOR CHILDREN
Montessori Experimental School, Aachen, Germany
DESIGNED BY SCHWARZ ANS SCHWIPPERT
The handles are designed for the overhand grasp which is natural to children

C. PLAY APPARATUS

No.	*Apparatus*	*Standard for Selection*
	Sand boxes. Outdoor—Zinc lined. Size depends upon available space. If possible it should be large enough for several children at a time to get into. A desirable size is 12 ft. by 12 ft. by 12 in. to 18 in. high. Cover should fit closely enough to prevent rain and dirt getting into sand. Indoor—Zinc lined on castors. Minimum size 3 ft. x 6 ft. by 18 in. high. Ledge about 10 in. wide on two sides. Sand box lid should be made in sections so that children can remove them. Holes bored in lids let the air in and keep sand from becoming moldy.	Children enjoy playing in the sand pouring it from one dish to another, letting it run through their fingers, digging their toes into it, making molds in different shapes, etc. The sand offers an opportunity for manipulation, experimentation, and creative play. For the younger children who should not be on their feet for long periods, it is a satisfactory place for play. A ledge around the box provides a place for setting dishes or piling sand. It should be about 10 in. wide. Because of limited space the indoor box is usually smaller than the outdoor, so that the children stand on the outside to play. A ledge on two sides only provides space for dishes, etc., leaving two sides for smaller children who cannot reach over the ledge easily. Plenty of sand toys should be provided.
1	Drinking fountain. White porcelain with nickel fittings. 15½ in. from floor. Handle 10 in. from floor.	Fountain with spray from side of bowl is most desirable since it prevents touching the opening with mouth and is high enough to prevent water from flowing back over it while child is drinking.
1	Slide 3 ft. or 5 ft., depending on size of children.	Provides good physical activity. Gives opportunity for adventure. Should stand solidly so that it will not teeter as child ascends the ladder. Wooden bedway is more satisfactory for small children than metal since it does not become so slippery. The last foot or two of slide should be parallel to the floor rather than ending abruptly, since it breaks the force of landing and prevents spinal injury.
4	Bulletin boards. May be cork, framed and hung in available space, or very low single or double easel covered with cork or burlap. Latter about 38 in. high by 24 in. wide.	Needed for pinning up pictures to be used temporarily. Should be low enough for children to see the pictures easily.
1	Fire extinguisher. (More if number of rooms make it advisable.)	Should be placed so as to be easily accessible. All teachers should know how to operate it.

D. BATHROOM EQUIPMENT

Toilets

1. Twice-fired vitreous china is easily cleansed and durable.

2. The height should be 10 or 11 inches from the floor, to enable the feet to touch the floor.

3. The "hidden tank" and fixtures are cheaper for the city, but a tank is often necessary for the country, due to the low water pressure.

4. A seat open at the front is desirable for sanitary purposes.

5. Two seats are sufficient if there are chambers, but three proves more satisfactory for twenty children.

Bowls

1. Cork and chain less likely to overflow with children.

2. Enamel handles instead of metal although said to be less durable, yet are larger, and would use the larger muscles in the child's hand.

3. Without a base or pedestal makes it possible to regulate the height of the bowls—24 inches with stools.

4. A "back" is necessary to protect the walls from the child's splashing.

5. Two faucets, instead of one are desirable to give children the experience of regulating the temperature of their water in a simpler manner. The single faucet might be too complex.

6. Three or four bowls are necessary for twenty children, four if possible.

Wash Sink

1. Long and narrow sink chosen in preference to the single deep tub depends on space. It is easier to rinse out child's bibs, etc.

2. A cork and chain must be specified.

3. Acid-resisting provides for ready cleaning.

Drinking Fountain

1. Can be placed 24 inches from ground on standard. A small platform should be built around it for the smallest shildren.

2. This standard is sometimes necessary for the roof fountain, or outdoor one, but should be covered or under a shed.

3. The water pressure should be regulated for young children.

4. The handle should be easily pulled down to get a drink by a child.

E. SPACE REQUIREMENTS FOR APPARATUS ON CHILDREN'S PLAYGROUNDS

In the following table* are given the dimensions and approximate use areas of several types of apparatus frequently installed on children's playgrounds. Since the types of equipment made by the various manufacturers differ somewhat, the dimensions and areas given are merely suggestive. Furthermore, it is not likely that all of the apparatus listed will be found on a single playground. It is desirable to provide safety zones around all apparatus especially that which is movable.

Type of Apparatus	Dimensions of Apparatus		Approximate Use Space Requirements in Feet	Space in Square Feet
	Length in Feet	Height in Feet		
Circular traveling rings...	10 ft. dia.	12	25 dia.	490
Gang slide....	16	8	20 x 45	900
Giant stride...		12	32 dia.	804
Horizontal bar	6	8 upright	12 x 20	240
Horizontal ladder.........	16	7½	8 x 24	192
Merry-go-round......	10 ft. dia.		30 dia.	707
Sand box on table.......	Size and shape varies 6 x 10 to 10 x 20		12 x 16 to 16 x 30	
Slide.........	16	8	12 x 30	360
Slide—spiral..	35	18	25 x 35	875
Swings—set of 3..........	15 at top	12	30 x 35	1050
Swings—set of 6..........	30 at top	12	30 x 50	1500
Teeters—set of 4..........	12–15x	2½	20 x 20	400
Traveling rings —set of 6...	40 at top	14	20 x 60	1200

III. ADULT RECREATION AND SOCIAL ACTIVITIES

1. *Provision for Recreation*

Adult recreation and social activities should be considered as an integral part of the community recreation system and should fit into a general program.

The games that the majority of adults actually practice and play are those which require individual skill, such as golf, tennis, hand ball, etc., rather than games requiring team playing, such as baseball, football, hockey, where their interest is generally that of a spectator.

Playground experts and instructors generally agree that games which require two to four participants and which were learned in school, college, or local recreation centers are generally the ones practiced or played in clubs or homes. Games that require a greater number of participants or an instructor are not satisfactory.

The success of a recreational system within an apartment house will largely depend on proper ***supervision of the schedule*** for the use of various facilities such as courts, game rooms, and social parlors. The following games comply with these requirements and are suitable for inclusion in an apartment house. It is not intended to suggest that separate space should be provided for all these games, because many can be played on the same area:

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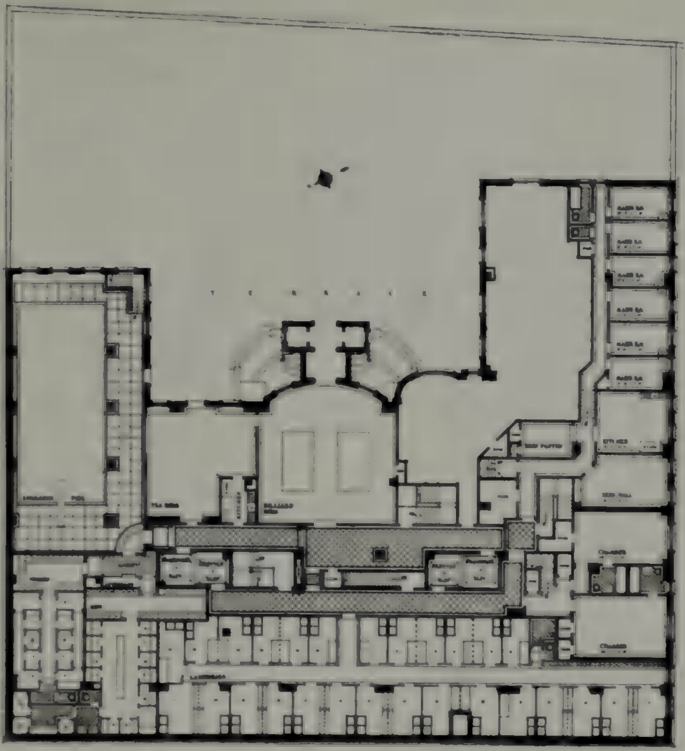
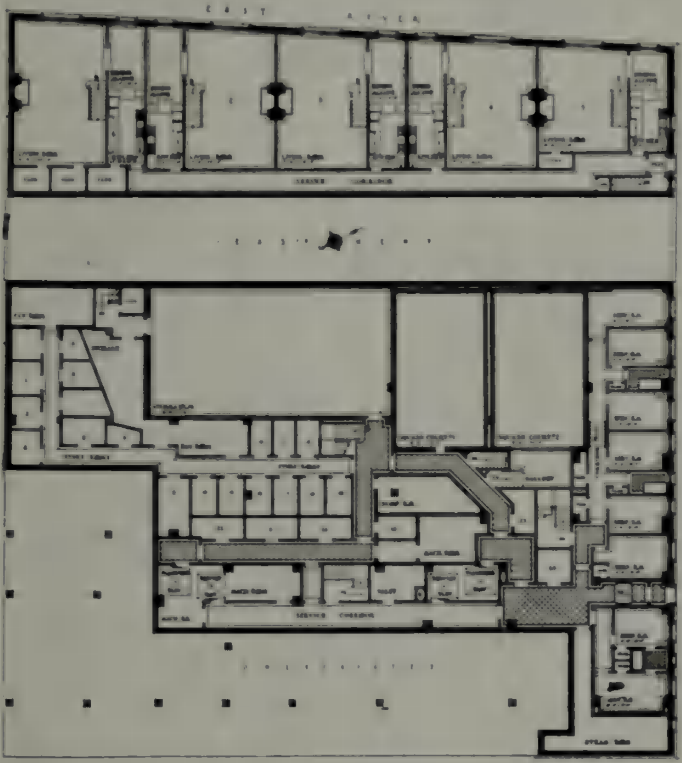
*Courtesy of Playground and Recreation Association of America.

ONE BEEKMAN PLACE, NEW YORK CITY

SLOAN AND ROBERTSON, ARCHITECTS,
CORBETT, HARRISON AND MAC MURRAY, CONSULTING
ARCHITECTS

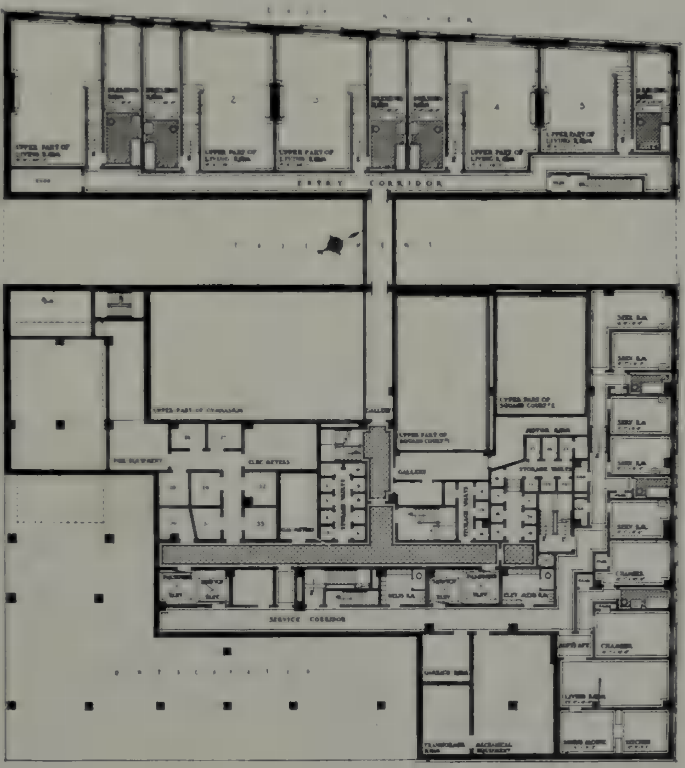


FIRST BASEMENT



THIRD BASEMENT

SECOND BASEMENT



Squash courts, recreational parlors, billiard room, swimming pool, and community accommodations in three basement floors.

SPACE REQUIREMENTS FOR GAMES AND SPORTS WHICH CAN BE PROVIDED IN AN APARTMENT HOUSE

Name	Dimensions of Play Areas	Use Dimensions	Space Required (sq. ft.)	Number of Players
Clock Golf.....	24′ Circle	30′ circle	706	Any number
Croquet........	30′ x 60′	30 x 60	1,800	Any number
Hand Ball......	20′ x 30′	30 x 42	1,200	2 or 4
Hand Tennis....	16′ x 40′	25 x 50	1,250	2 or 4
Paddle Tennis...	18′ x 39′	26 x 57	1,482	2 or 4
Roque.........	30′ x 60′	30 x 60	1,800	4
Shuffle Board....	10′ x 40′ to 50′	15 x 50 or longer	750	2 or 4
Volley Ball.....	30′ x 60′	40 x 80	3,200	12–16
Squash Racquets				
Single Courts.		18½′–32′ (16′ Ceiling)		
Double Courts.		35–45		

Above areas may be used for Boxing, Wrestling and Jiu Jitsu, Bag Punching, Medicine Ball, Pulley Weights, Rowing Machines.

2. *Games of a Semi-Social Nature*

Commercial pool rooms in an apartment house are distinctly unsatisfactory because they attract an undesirable patronage. But pool and billiard tables may be included if there is a tenants' club, though they will require proper supervision.

Recreation in Social Parlors

Social parlors of various sizes should be provided for rental for card parties, teas, receptions, dinner parties or dances.

A ball room at least 24 ft. x 36 ft. should be provided. This room may be used for dancing classes for young children during the day and in the evening for radio or victrola dances for young people or adults. This room should have a small stage at one end where amateur theatricals may be given and provision made for the showing of benefit, instructional or children's movies. A fireproof projector booth should be included as part of the structure.

The parlors and ball room should be accessible to service from the restaurant.

Ample closet space should be provided for storage of card tables, folding ping-pong tables, chairs, and rugs when the hall is used for dancing.

Lawn Games

Croquet has certain advantages which recommend it for inclusion in the landscaping of apartment house grounds. It only requires an area of 30 ft. x 60 ft. There is practically no upkeep required since the players generally own their own mallets and balls.

Clock golf, which requires a circle of only 30-foot diameter, is another game which lends itself to an apartment house layout.

IV. CENTRALIZED APARTMENT HOUSE SERVICES

Naturally the amount and character of service will depend largely on the type of tenant but for a large apartment the following services will frequently be found to be desirable. The architect must provide locker rooms, rest rooms, and other special plan requirements for this service, personnel, and equipment.

1. *Maid Service*

The servant problem is met in a satisfactory manner in many apartments by the building management employing maids on a full time monthly basis and supplying the various tenants with part-time service when needed. One maid for approximately twenty-five tenants will generally be sufficient. One apartment employs maids at a salary of $60 a month and supplies the tenants with maids for fifty cents an hour. These maids do cleaning, cooking, or table service, and also stay with children in the evening. It has been the experience of this company that maids, though on duty from nine to five, average five hours work a day. This gives the company a gross return of approximately $20 a month per maid which takes care of the salary of chief housekeeper and maintenance of vacuum cleaners and other cleaning equipment owned by management; and it also returns a profit.

This maid service may be used for preparing meals in individual apartments or serving meals obtained in part or whole from a community kitchen.

2. *Community Kitchens*

There has been considerable difference of opinion as to the advisability of establishing community kitchens in apartment houses. In a recent questionnaire* it was found that very few desired to make regular use of a central kitchen, although a considerable number indicated a desire to make occasional use of such a facility.

Centralized kitchen and food service, while it reduces the inefficiency of the individual preparation of meals, has not been a success when done on a cooperative basis,† due to lack of proper management and the failure of the members to use the service regularly. However, delivery to apartments of food from a central kitchen, when secondary to a restaurant or delicatessen, has proved successful when conducted as a commercial enterprise. The restaurant to be successful must be on the street and in a neighborhood which will give it patronage, since it will probably not be successful if heavily dependent on the tenants of the building. In planning for

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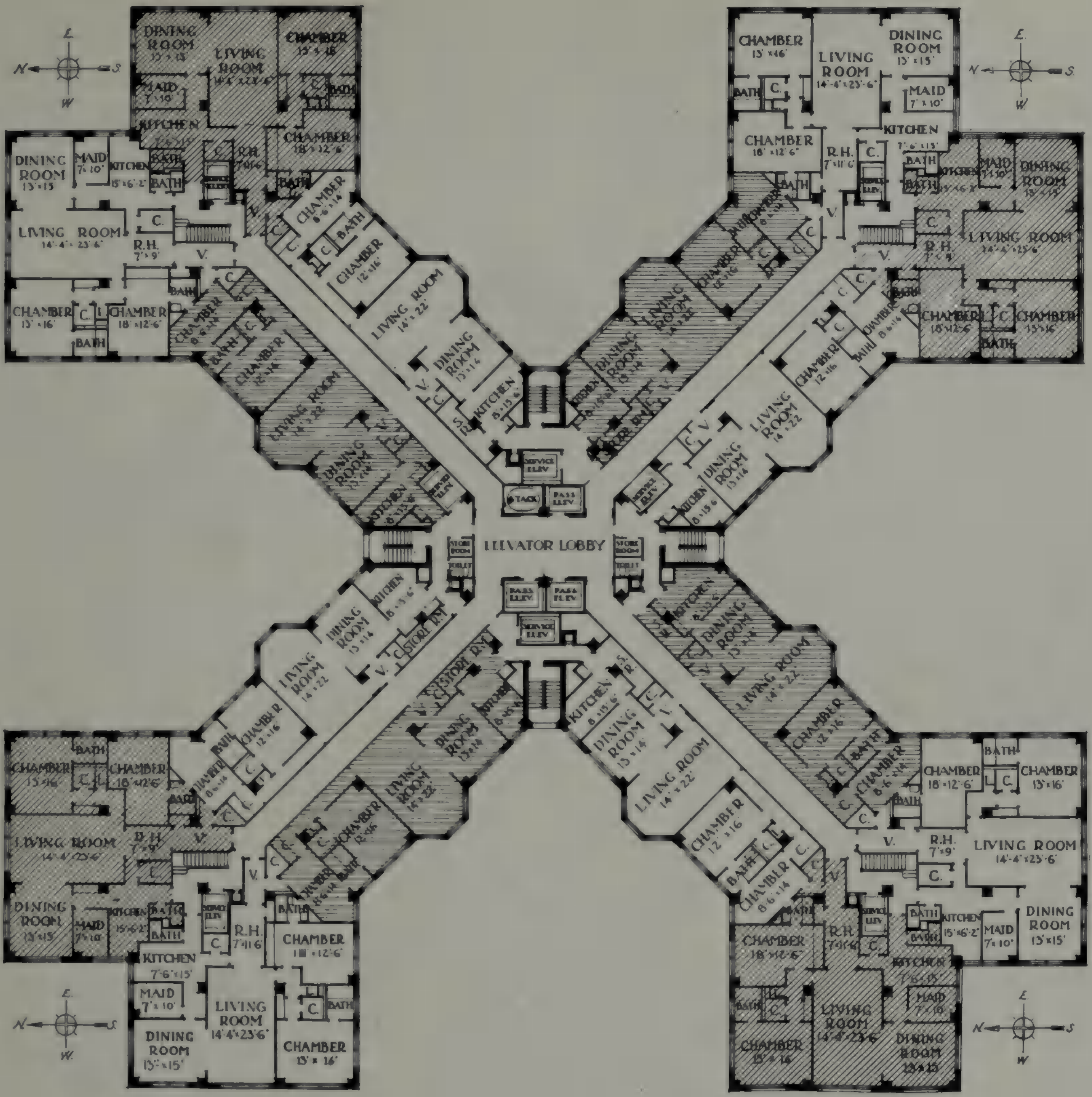
* Questionnaire sent to members of the faculty of Columbia University, who were interested in a proposed cooperative apartment.

† Cooked Food Supply Experiments in America. Alice Peloubet Norton, Smith College.



TYPICAL FLOOR PLAN

EDGEWATER BEACH APARTMENTS, CHICAGO

BENJAMIN H. MARSHALL, ARCHITECT

A large apartment development showing the present tendency to concentrate every sort of service in a central plant.

THE PLAN *is such that all rooms (except a few baths) have outside exposure. Three fourths of the apartments have a view of Lake Michigan.*

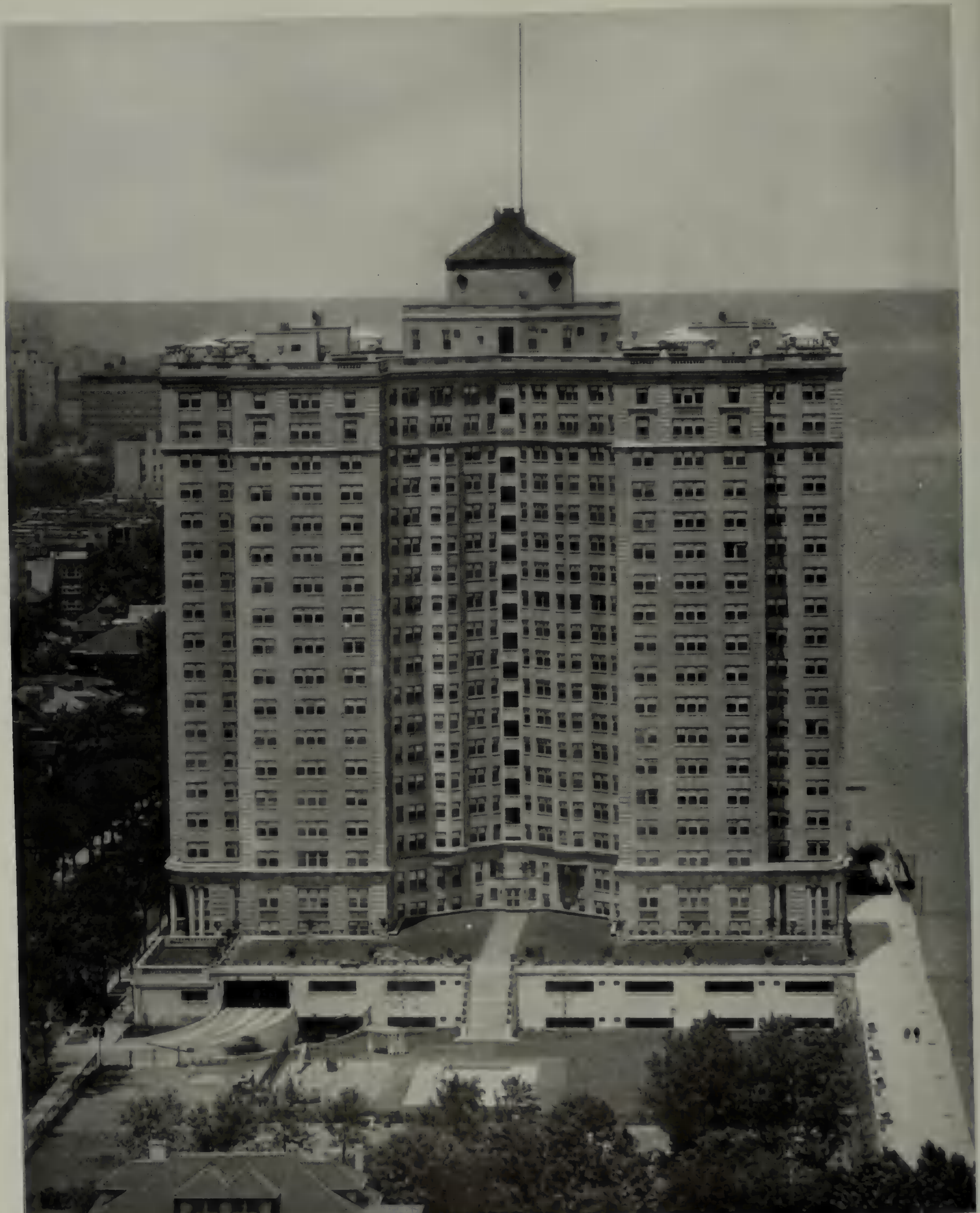
SHOPS *within building; garage with automobile accessory shop connected directly to lobby.*

A RESTAURANT *and electrically equipped central kitchen provide every tenant with hotel food service; maid service is optional. Community laundry.*

SWIMMING POOL, *beach promenade, gardens and lawns, children's playground, tennis courts, putting greens.*

KITCHENS *within apartments have automatic refrigeration, laundry tray under hinged drainboard of sink, small gas clothes dryer, ironing boards, and Pullman tables.*

SERVICE ELEVATORS AND INCINERATORS *at each rear entrance.*



EDGEWATER BEACH APARTMENTS, CHICAGO

BENJAMIN H. MARSHALL, ARCHITECT

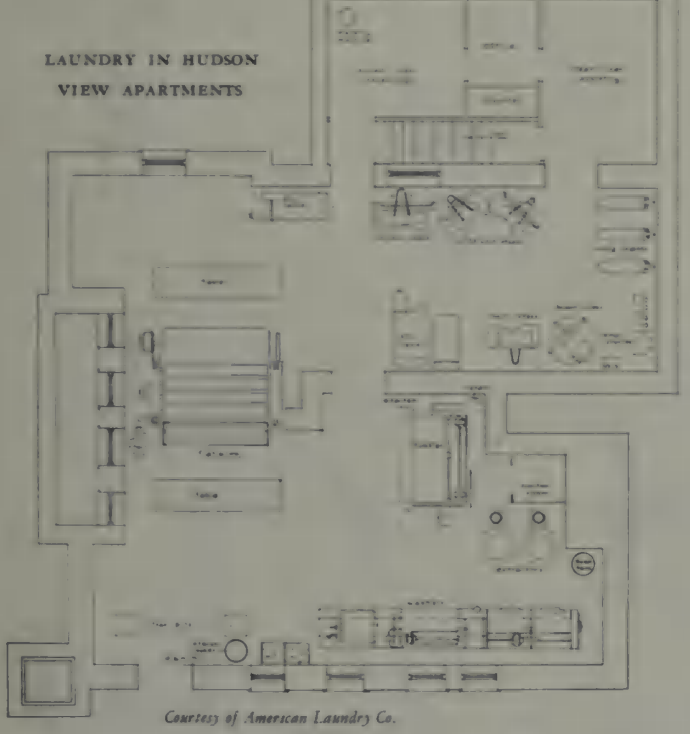
(See plan on previous page)

this service in a building the kitchen should be made readily accessible to the dumb waiters or service elevators.

If there is a nursery and kindergarten in the building a small kitchen should be provided, but a central kitchen may be used if there is one.

3. *Central Laundry Service*

There are various ways of handling the laundry problem. The general practice has been to provide laundry trays in each kitchen. Many apartments also have laundry trays and domestic laundry dryers in the basements, but the general experience has been that this equipment has not been used very much. Many recent apartments have omitted this equipment. Some large apartments have provided completely equipped laundry plants which are operated by the management on the same basis as commercial laundries except that with the elimination of delivery service and the cost of soliciting business they are operated at a considerable saving, part of which is passed on to the tenants through reduction in prices. There is the additional advantage to the tenants of very fast service. See accompanying plan.



LAUNDRY IN HUDSON VIEW APARTMENTS

Courtesy of American Laundry Co.

4. *Centralized Annunciator 'Phone Service*

By connecting telephones in the entry halls with a central operator, rather than direct to the apartment, it is possible for an apartment house with many separate entrances to have the advantages which generally come from the central entrance lobby with an information desk and telephone girl.

5. *Receiving Room Service*

An automatic self-locking delivery receptacle for wall or door installation obviates the necessity of delivery-men entering the apartment by providing an outside depository for packages, parcels, etc.

For the most expensive type of apartment a central receiving room will generally be desired. This receiving room should be equipped with a refrigerator unit for storage of perishable goods.

6. *Mechanical Equipment*

Centralized control of hall, foyer, and exterior lights.

Separate circuits for morning, evening, and night lights, which permit central control, will be found to result in a saving of current and superintendent's labor. In a cooperative apartment for 354 families (Hudson View Apartments) where this system was installed, at an additional cost of $14,000, the management estimates that the saving in current and labor will pay for this installation in two years,

7. *Automatic Elevators*

Recent improvements in elevator equipment eliminate the difficulty previously experienced due to failure of tenants to close the inner gate when leaving the car. These improvements give satisfactory service in buildings of limited height, combined with considerable saving in operation costs.

8. *Heating*

Theoretically, the ideal solution would be in an automatic unit heater and ventilator within each apartment room. At the present time there are no individual automatic coal or oil burner units which would be satisfactory for use in small individual apartments. It will not be economically profitable to use gas-fired water or steam units in most localities having severe winter weather until we improve the insulation of walls and windows. In addition we should reduce the heat absorption of the wall to a point where it may be brought to room temperature in five minutes, using four times the heat required to maintain room temperature once the wall and room are heated. (It now requires three hours to bring the inside surface of a plastered eight-inch brick wall to room temperature using four times the heat required to maintain room temperature.) If the room can be brought to room temperature in five minutes or less it will not be necessary to keep bedrooms or other rooms warm when not in use, and this decrease in heating time will more than balance the added cost of gas or electricity over a centralized heating system utilizing coal or oil.

With present construction methods the central heating system is probably the only solution possible. If water system is used the temperature may be regulated to the weather conditions. If steam is used it is desirable that automatic intermittent control valves be used on steam lines. These valves will permit steam to reach the radiator at desired intervals and greatly reduce heat loss particularly in mild weather. This central heating plant may also furnish steam power for a central refrigerator plant and for use in the laundry.

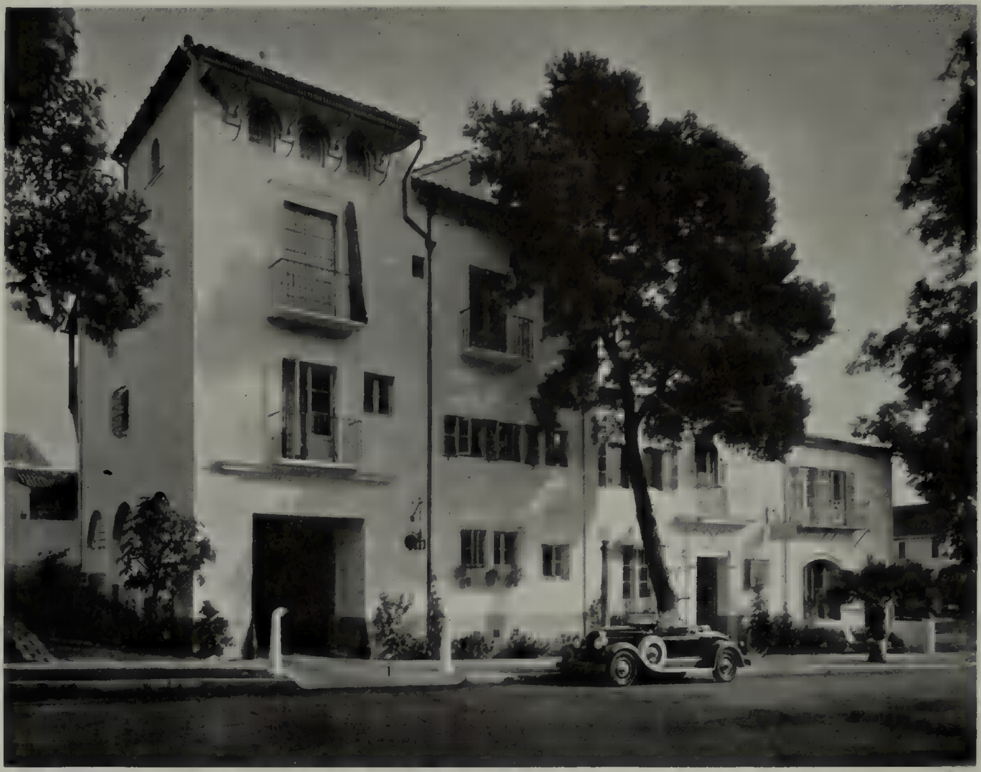
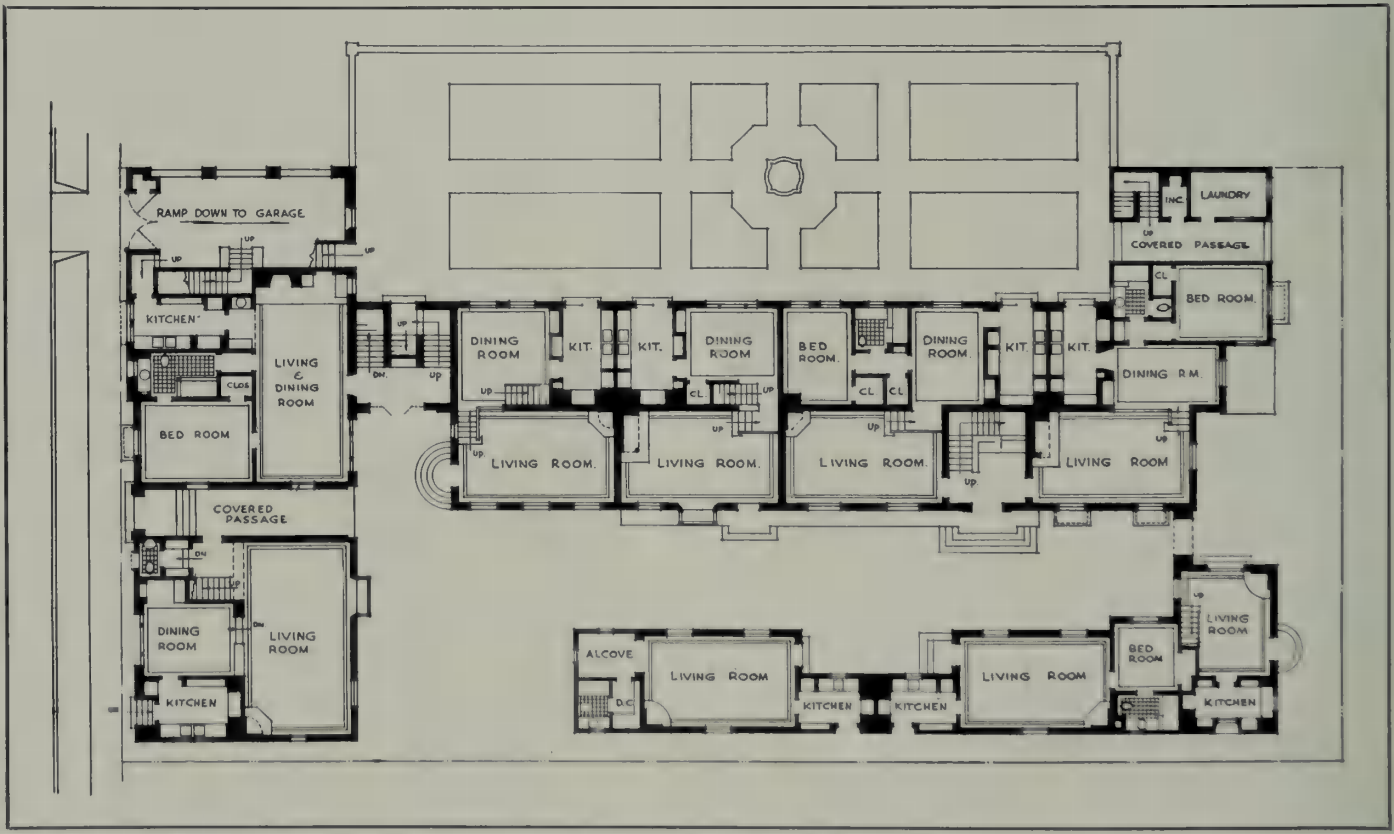


Photo. Mott Studios

VIEW FROM STREET

An apartment with garage under garden court. The garage doors are opened by inserting key in standards at edge of curb



FIRST FLOOR PLAN

THE RONDA APARTMENTS, HOLLYWOOD, CALIF.

ARTHUR ZWEBELL, ARCHITECT

There is a mistaken idea, on the part of many building owners, that steam power used for mechanical equipment or running a central refrigerator system does not cost anything if the steam is afterwards used for heating purposes. Although heat may be a by-product of a power plant, power is not a by-product of a heating plant. To produce power it is necessary to use considerable extra fuel to gain the additional pressure.

4. *Radio Equipment*

Practically all apartment houses are wired for radio, either running wires to a central antenna on the roof or, in some of the larger apartment houses, a central receiving station is established and the program relayed to individual loud speakers. The number of programs which one may choose from, varies. The Statler hotels provide a choice of two programs. Some apartment houses permit a selection from four stations. In addition, one may phone to the reception room and have a particular station tuned in. One very important advantage of the central system is that it enables the management to control loudness and also hours during which the radio may be used.

5. *Built-in Equipment*

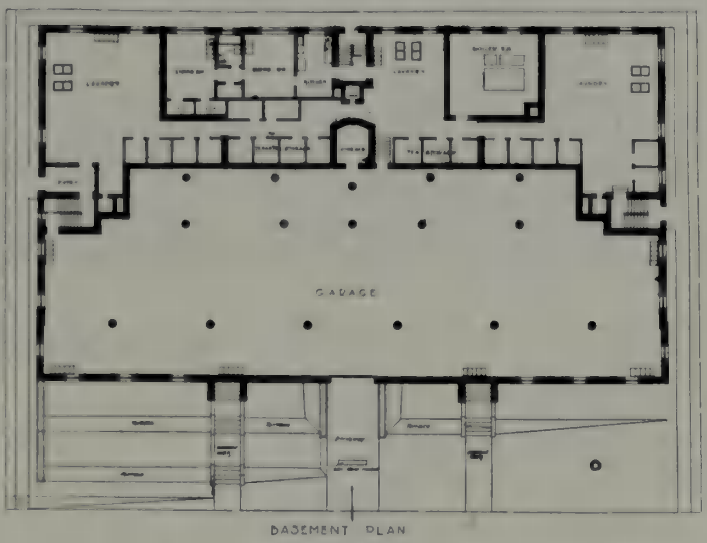
Recent years have seen a very great increase in built-in equipment. This movement originated in California and is now gradually penetrating the east. A recent questionnaire has shown that the prejudice against the built-in beds and other forms of built-in equipment is giving way in the face of economic necessity.

V. OTHER SERVICES

1. *Garages*

There is a decided increase in the trend to incorporate a garage in an apartment building or to have it adjacent to and connected with the apartment house. See plan below.

In considering the advisability of incorporating a garage in an apartment house the rule of thumb that the lot cost should not exceed the cost of the building will be found helpful. Assuming the garage to cost $2.50 per square foot of floor area the land should not cost in excess of $2.50 for a one-story building, $5.00 for a two-story building or $7.50 for a three-story. This same figure can be used to determine how deep it will pay to excavate under an apartment house for a garage. If excavation costs $3.00 per cubic yard, that is equivalent to $1.00 per square foot nine feet deep. From this it can be seen that it will often pay to excavate for a garage rather than build it at street level, providing that the build-



BLUE RIDGE APARTMENTS, ST. LOUIS

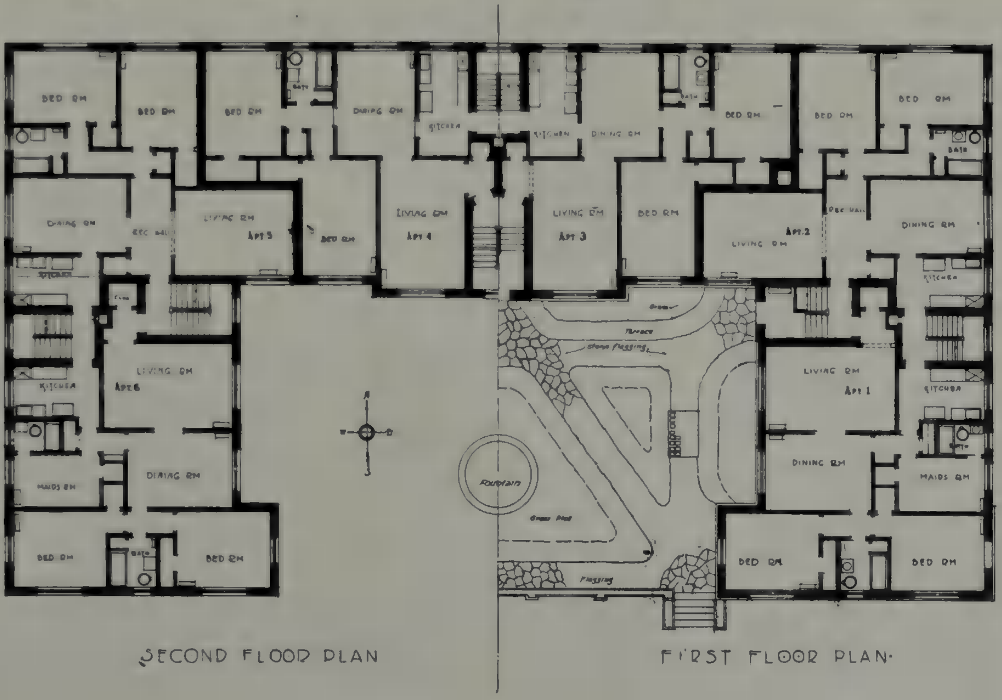
PLEITSCH AND PRICE, ARCHITECTS

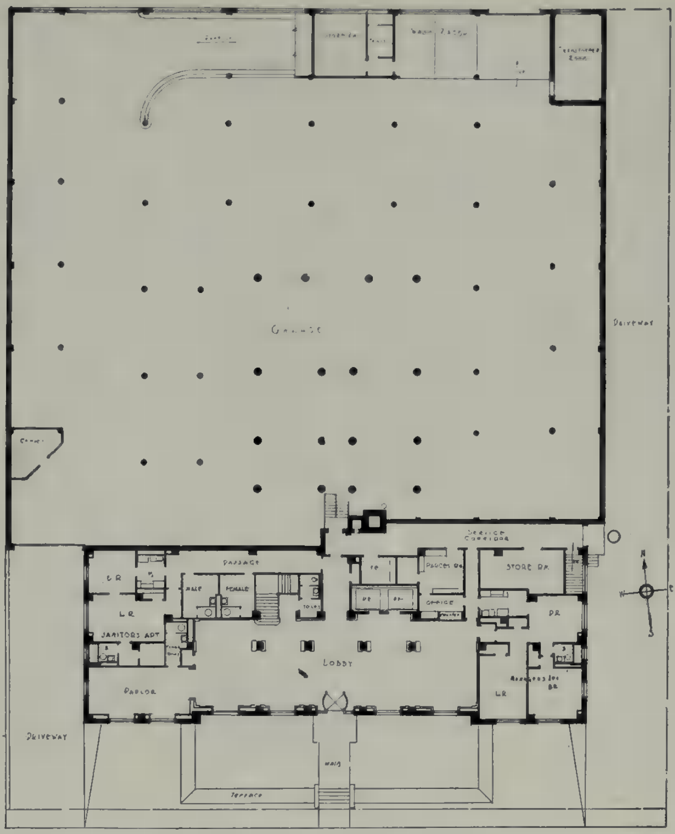
Garage at front and across the entire site. Laundry and individual storage rooms at rear.

BLUE RIDGE APARTMENTS, ST. LOUIS

PLEITSCH AND PRICE, ARCHITECTS

Apartment suites of variable size on upper floors. A garden terrace surmounts garage space on street level with entrance at center.





FIRST FLOOR PLAN

HAWTHORNE APARTMENTS, ST. LOUIS

PLEITSCH AND PRICE, ARCHITECTS

Garage accommodation at rear of site with direct access to apartment elevator hall. Reception rooms with janitor, storage and other service are confined to the first floor area.

•

ing and fire codes permit this. It should be remembered that special provision must be made for ventilation, to prevent asphyxiation and to prevent fires or explosions from gasoline fumes.

The garage should have space for parking cars of visitors. One of the most recent zoning ordinances provides that an apartment house shall provide parking space of sufficient area to accommodate *one car for each family housed and that such space must be reserved for use by tenants of the building or their guests.*

Garage design data: Parking width 6 ft. 9 in. x 15 ft. deep with 20 ft. aisle. A three-car bay should be 20 ft. in the clear. Ramp grades may be from 12° to 15°. It will require a total floor area of from 200 to 280 square feet per car depending on the type of ramp system used and the size and shape of the lot.*

2. *Stores*

Although stores are frequently objected to in apartment houses, the additional income to be derived from this source makes it worth while to attempt to overcome these objections through proper planning. Generally speaking the store rent should carry the interest and taxes on the land. Examples of this may be seen in some of our best hotels and apartment houses. In some cases the effect of "living over a store" is eliminated by having the entrance to apartments from a large central court. (See accompanying plan and photographs of the Boulevard Apartments in Chicago.) In other cases the entrance to apartments is from a side street.

3. *Size of Apartment House*

Experienced operators are of the opinion that to obtain economical operation of centralized equipment and services an apartment house should have at least 200 families. There will be some additional savings in units over this size but the savings will not be proportionate. A 400-family apartment would cost about $80 per apartment as compared to $186 for a 100-family apartment.

	Per 100 Families		Per Additional 100 Families	
	Persons	Cost	Persons	Cost
Superintendent	1	$2,500	None	None
Porters	3	3,000	3	$3,000
Scrubwomen	2	2,000	1	1,000
Gardner	1	1,500	None	None
Engineers	2	3,600	None	None
Handyman	1	1,500	None	None
Electrician	1	1,500	None	None
Telephone Operators	2	3,000		
Total	13	$18,600	Additional	$4,000
Per Apartment		$186		$113

VI. RENT

There are several ways of figuring rent. How much can the tenant pay; what should the rent be to bring a pre-determined income on the investment; what are the average rentals in that particular locality? Rent will be considered from these three angles.

First, the average apartment house tenant if depending solely on his own income can probably not afford to pay over thirty-five dollars a month for rent.* If his wife or some member of his family works, this amount may be increased to approximately sixty dollars a month. If the wife works, they must remain childless or some provision must be made for the care of children, either by central nurseries as suggested in this article or by some relative living with them. If the family income is sufficiently large for the employment of a maid or nurse it is probably sufficiently large so that it is not necessary for the wife to work.

Second, assuming that the rent is to be determined on the basis of giving a pre-determined income

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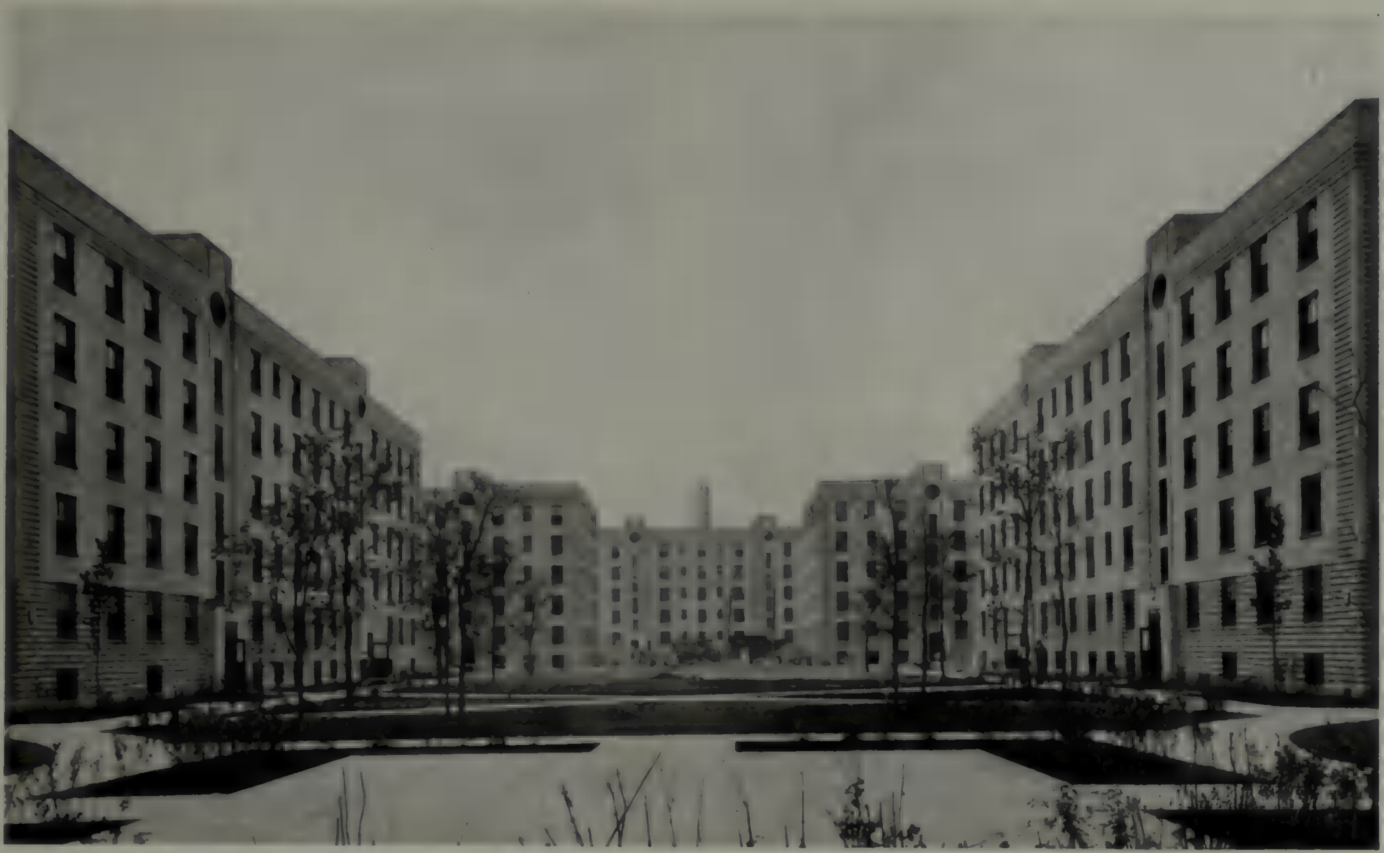
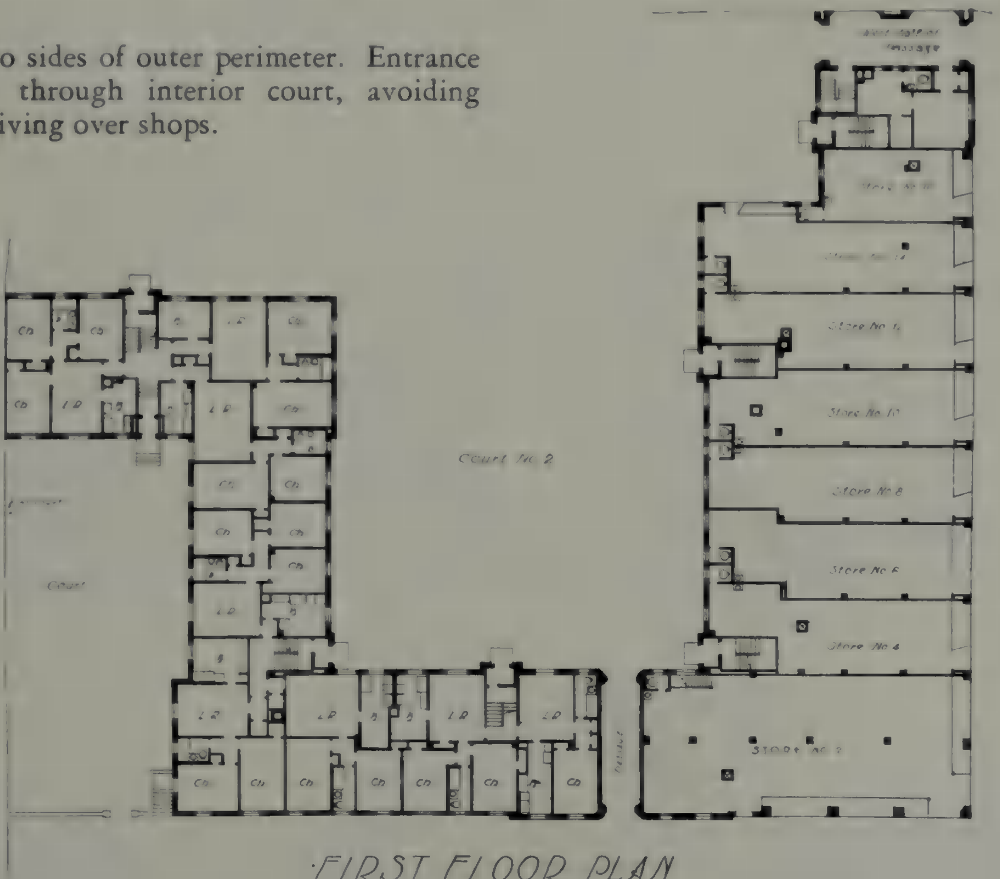
* For further details on garages, see February, 1929, issue of The Architectural Record.

* Eighty-six per cent of those gainfully employed in the United States receive less than $2,000 per year. Assuming one week's income as maximum for one month's rent we have a maximum rent of $38.40, unless there is additional income from some other member of the family.



INTERIOR COURT

Stores on two sides of outer perimeter. Entrance to apartments through interior court, avoiding appearance of living over shops.



·FIRST FLOOR PLAN

MICHIGAN BOULEVARD GARDENS, CHICAGO

E. H. KLABER AND E. A. CRUNSFIELD, JR., ARCHITECTS of approximately 8% on the capital invested, it will be necessary to consider a combination of four basic factors. (1) Carrying charges on land cost, (2) Carrying charges on building cost, (3) Financing, and (4) Maintenance. For analysis it is convenient to group financing costs under land and building, respectively, including a reasonable return or profit on the investment involved in each field. The items of losses due to normal vacancies and renovation are grouped under maintenance.

Thus, land charges include interest, financing, taxes, site development.

Building charges include interest, financing, taxes, depreciation or amortization.

Maintenance charges include management, services, vacancies, and renovation.

Because of the wide variation in high financial bonuses and wide margins of profit necessary to absorb risk, bad judgment, unfortunate extravagance of tenants, etc., it is necessary to use, for re-

*CARRYING CHARGES THREE-ROOM APARTMENT
(Theoretical Set Up)

I Land	
200×200×$4.00=$160,000	
$160,000—200 units=$800 per unit	
$800+10% Financing×(7% Interest+2% Taxes)=	$80.00
II Building	
7,775 @ $.55=$4,276	
4,276×12.67%†=	540.00
III Maintenance	135.00
Vacancies 3%	25.00
Section under 8 stories, Total per year	$780.00
Section under 8 stories, Total per month	65.00
Additional per month for Section over 8 stories Elevator $6.20; Bldg. $3.80	10.00
Section over 8 stories, Total per month	$75.00

* For complete details of this method of figuring rent, see pages 237–245 and 301 in March, 1929 issue of The Architectural Record.

† Cost: 10% Financing × (7% interest, 2½% amortization, 2% taxes)=12.65%.

*CARRYING CHARGES FOR THREE-ROOM APARTMENT
(Average of 48 apartments throughout the United States)

	Nat. Assoc. Bldg. Owners and Mgrs., 1928 Average Percentages	Monthly Rent for Three-Room Apt.	
		8 Story Sect.	32 Story Sect.
I Land			
200×200 @ $4=$160,000			
$160,000+200 apts.=800 per apt.	Per Cent of Value		
$800+12 months	5.95%	$3.90	$3.90
II Building			
$.55×7,776 cu. ft.=$4,276			
$4,276+12 months @	5.95	21.20	25.00
.65×7,776 cu. ft.=$5,053			
$5,053+12 months @	5.95		
41.86% of Rent		25.10	28.90
III Operation Maintenance and Vacancies	Per Cent of Rent		Additional elevator service, 6.20
Fuel	5.47	3.28	3.28
Wages	7.95	4.77	4.77
Supplies	1.03	.62	.62
Electrical Current	1.49	.89	.89
Water	1.05	.63	.63
Management	4.84	2.90	2.90
Paint and Decorating	5.51	3.30	3.30
Plumbing and steam fitting	2.14	1.28	1.28
Electrical	.80	.48	.48
Carpenter	.94	.56	.56
Other repairs	1.69	1.00	1.00
Taxes	10.68	6.41	6.41
Insurance	1.30	.78	.78
Other Expenses	1.92	1.15	1.15
Total	46.81%	28.05	34.05
Vacancies	11.33%	6.80	7.05
Per Cent. of rent for interest on land and buildings	41.86%		
Rent per three-room apartment (Average for survey was $19.14 per room)	100%	$60.00	$70.00†

* Average of maintenance, operating and income return from 48 apartment houses located in various cities throughout the U. S. 1928 Apartment House Experience Exchange. (Copyright National Assoc. of Bldg. Owners and Mgrs., 134 South La Salle Street, Chicago.)

† Although a $20 a month rent per room is in line with current real estate practice there are "limited dividend housing companies," which are renting and selling apartments at from $9 to $15 per room per month. By using economy in construction and low cost money combined with cooperative ownership it should be possible to bring the rent of the accompanying apartment house scheme within this price range or $36 to $45 per apartment.

liable comparison, a type of moderate but adequate financing which is perhaps not as typical of actual practice as might be desired.

We will allow 10% on the actual cost of both the land and building to cover the cost of financing, carrying charges, etc., until the building is ready for occupancy—and 7% interest on the resulting amount which, together with 2½% amortization and depreciation of building cost* should be sufficient to pay for loan renewals, interest on 60% first mortgage, and interest on—and retirement of—second mortgage in 10 or 12 years; and pay about 8% on the equity. If the building is well managed and vacancy losses do not exceed the allowance in the maintenance budget, the owner should receive an increased earning on his equity after this time. Larger margins are frequently allowed and suburban locations may have to pay higher rates on a reduced proportion of first mortgages. These assumptions are, however, sufficiently representative for our purpose for projects in Eastern areas.

Third, if the rents are to be determined on the basis of the average operating and maintenance costs, and the return on the investment and rent per room in a particular neighborhood, figures for the country as a whole as given by the National Association of Building Owners and Managers are suggestive of actual conditions. The return on the investment as given is probably too low and no provision has been made for amortization and depreciation, but on the other hand, the allowances for maintenance and operation are rather high. It is possible that maintenance is sufficiently less in the early years of the life of these apartments to take care of the items of depreciation and amortization.

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* This division of 7% interest and 2½% for amortization and depreciation is an arbitrary but convenient manner of separating the charges which appertain to land and building costs. It represents a complete series of factors which include profit in the return on the owner's equity and a continually changing relation between interest and amortization due to the liquidation of both first and junior mortgages.

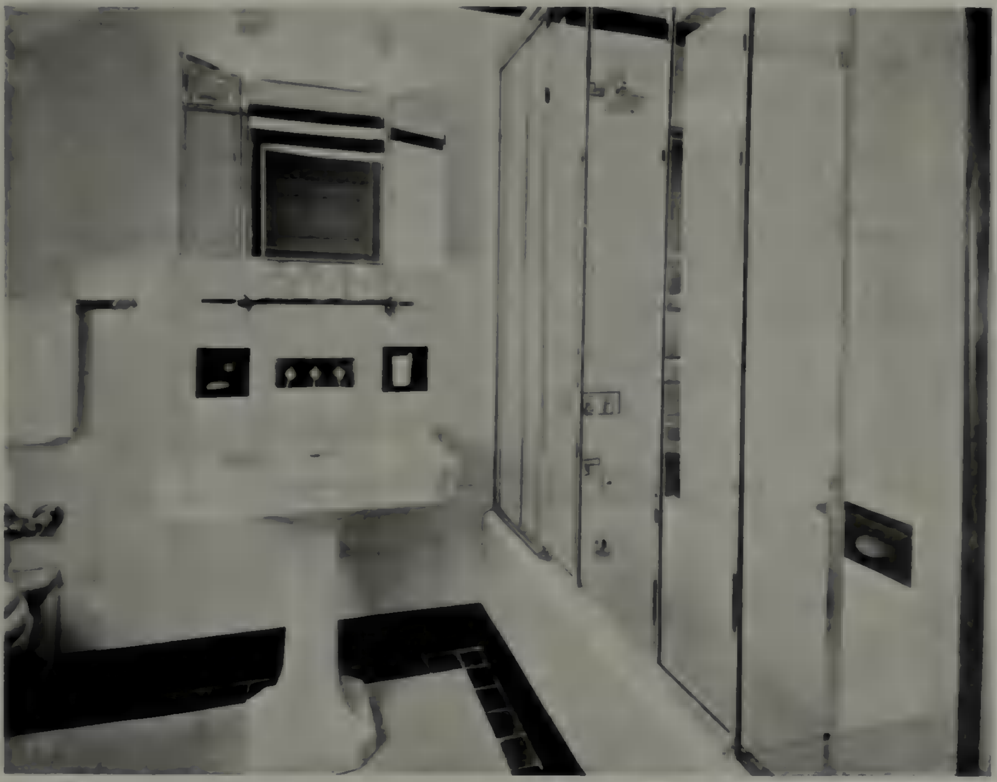


Photo. Moss

BATHROOM WITH GLASS-ENCLOSED TUB

TOWN HOUSE APARTMENT, LOS ANGELES

NORMAN ALPAUGH, ARCHITECT

CORRECTION

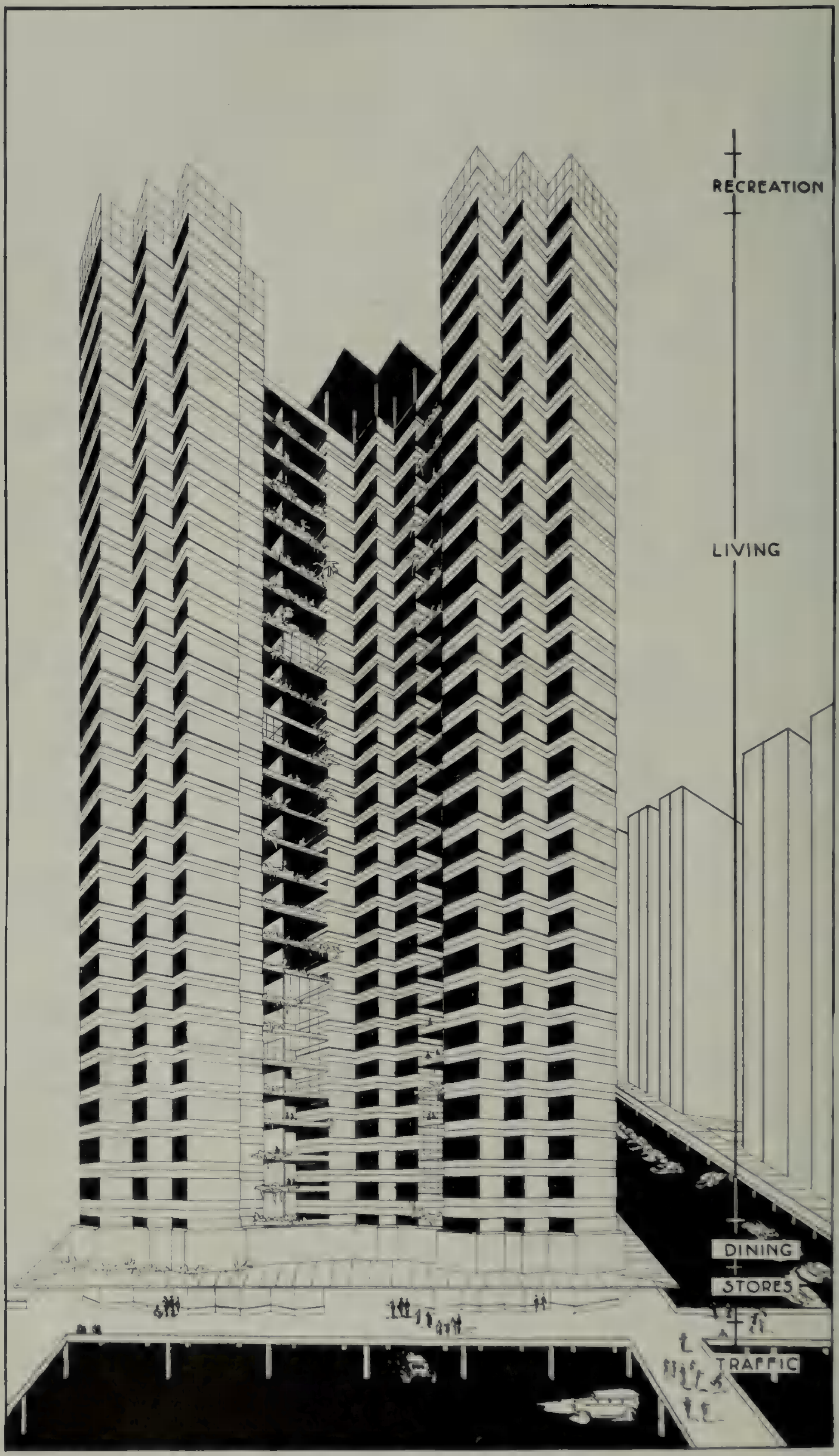
In the February issue two errors were made in the ascription of houses. One concerned the owner and the other the architect. THE RECORD apologizes to *Mr. Theodore L. Bodenwein* for having assigned his house, of which Mr. Frank J. Forster is the architect, to a non-existent Mr. Bodenweiser and it wishes to add to the caption on Page 114 of an illustration of "A Standard House" that the drawing was from *Edmund B. Gilchrist, Architect.* Mr. Gilchrist was associated in the planning of the Wyandotte, Michigan, housing development under the War Emergency Housing Corporation.

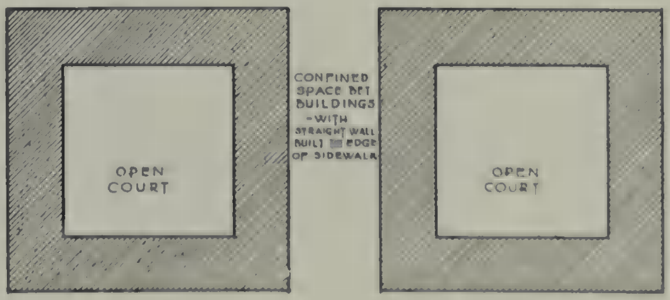
SUNLIGHT TOWERS

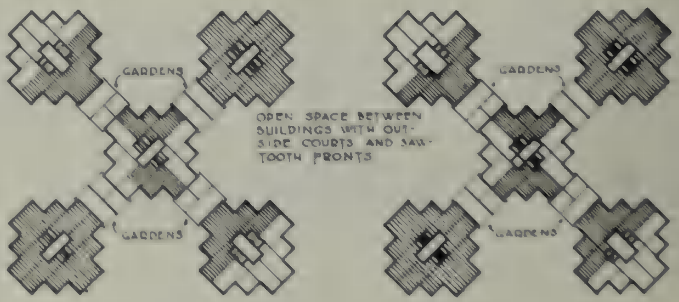
(*An Apartment House*)

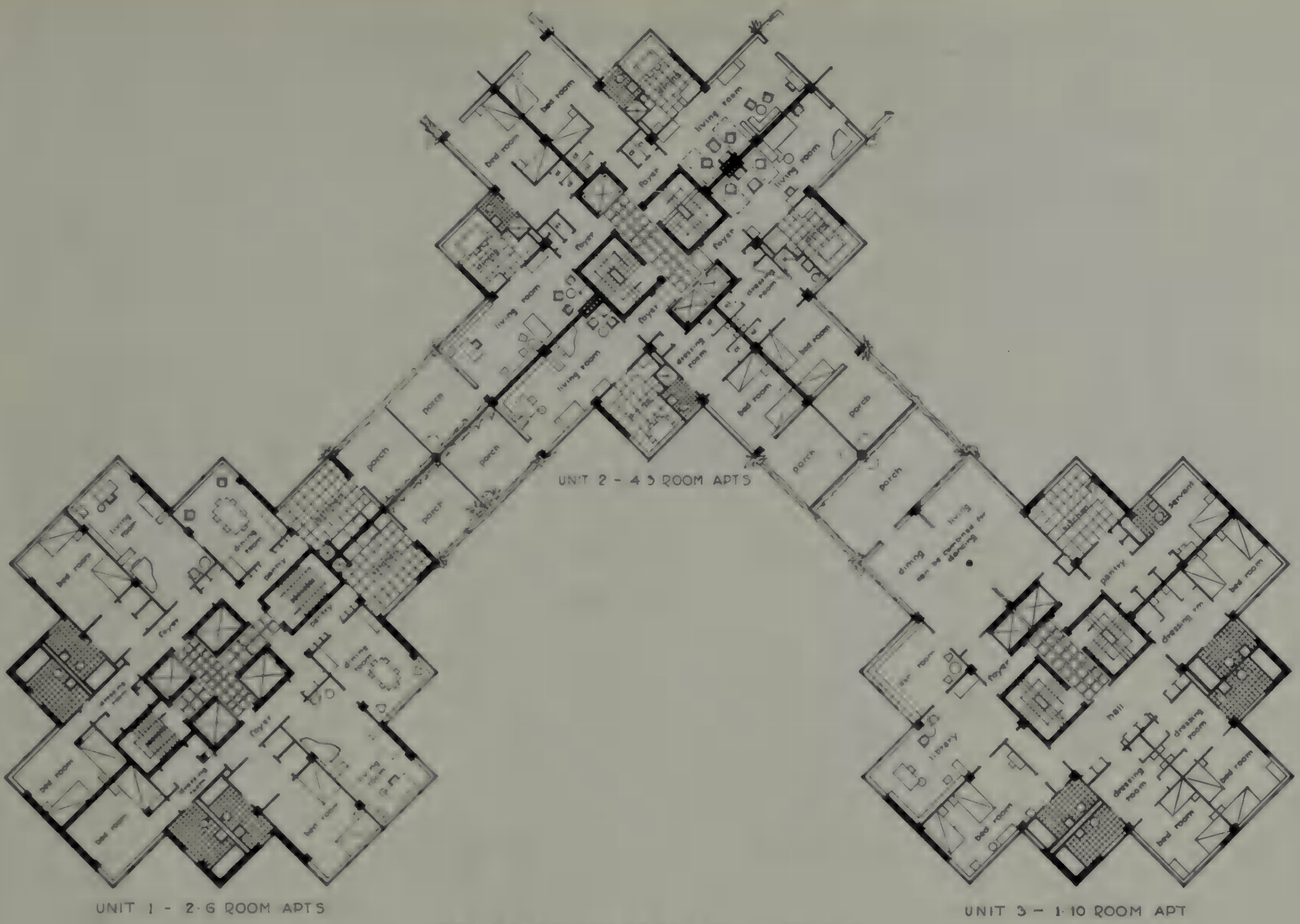
A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

Diagram of sawtooth units vertically repeated. The building is diagonally planned so as to give space back to the streets and to admit sunlight and air to all rooms. Each apartment is given a garden and all rooms have exposure and view in two directions. (See ARCHITECTURAL RECORD, March, 1929, p. 307–310.) There is a clear definition between traffic, stores, dining living space and recreation areas. The building is designed not as sculpture with a flat facade and accidental setbacks but as a direct utilization of rooms for city life. The separation of auto and foot traffic is imperative




OPEN COURT
CONFINED SPACE BET BUILDINGS -WITH STRAIGHT WALL BUILT [illegible] EDGE OF SIDEWALK
OPEN COURT

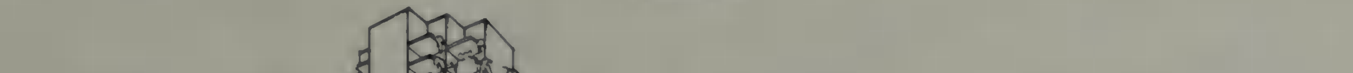

GARDENS
GARDENS
OPEN SPACE BETWEEN BUILDINGS WITH OUTSIDE COURTS AND SAWTOOTH FRONTS
GARDENS
GARDENS



PLAN OF SUNLIGHT TOWERS

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

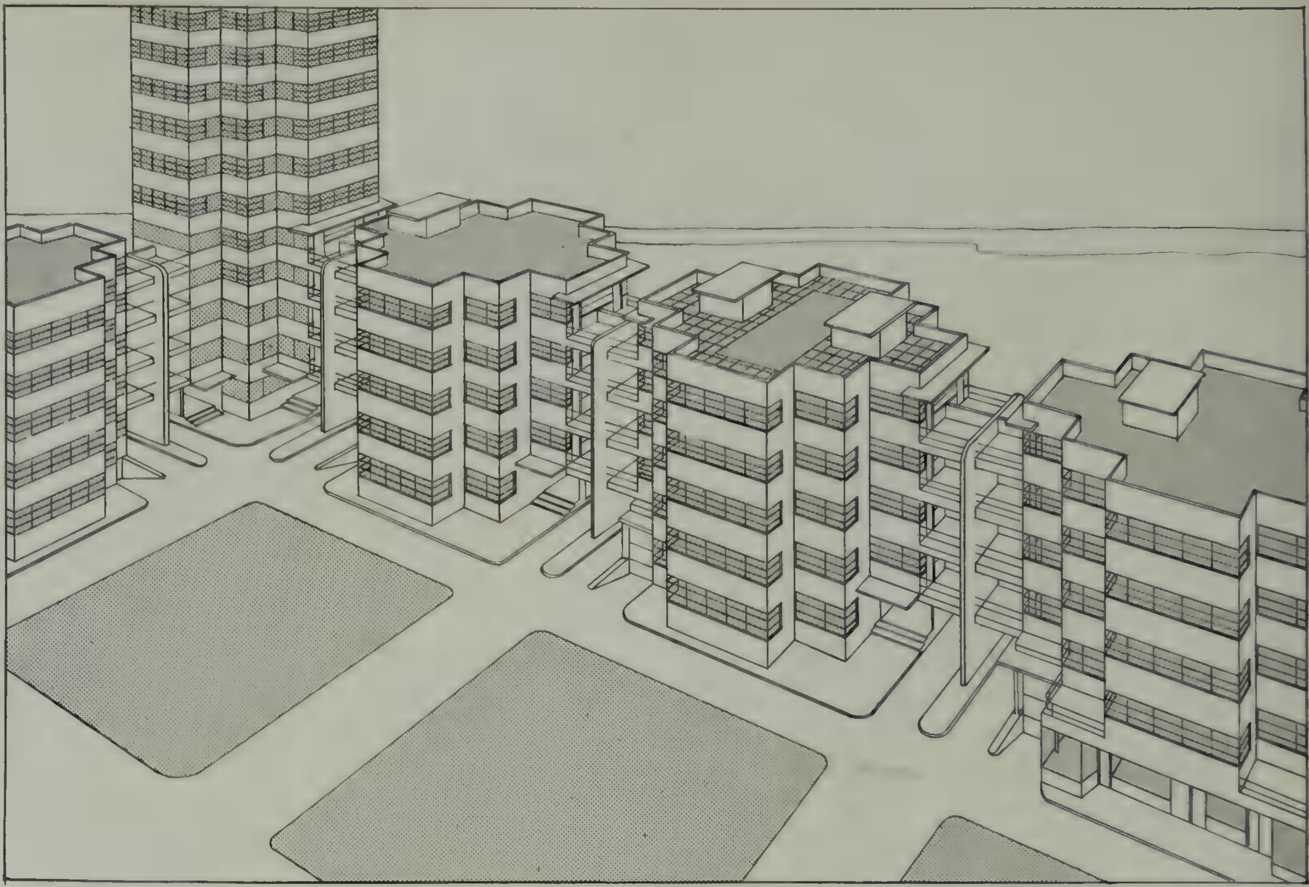
Variation of 1, 3, 6 and 10 room apartments. All rooms have outside exposure with view in two directions and cross ventilation. The utilities (elevators, stairways and public halls) are reduced to a minimum

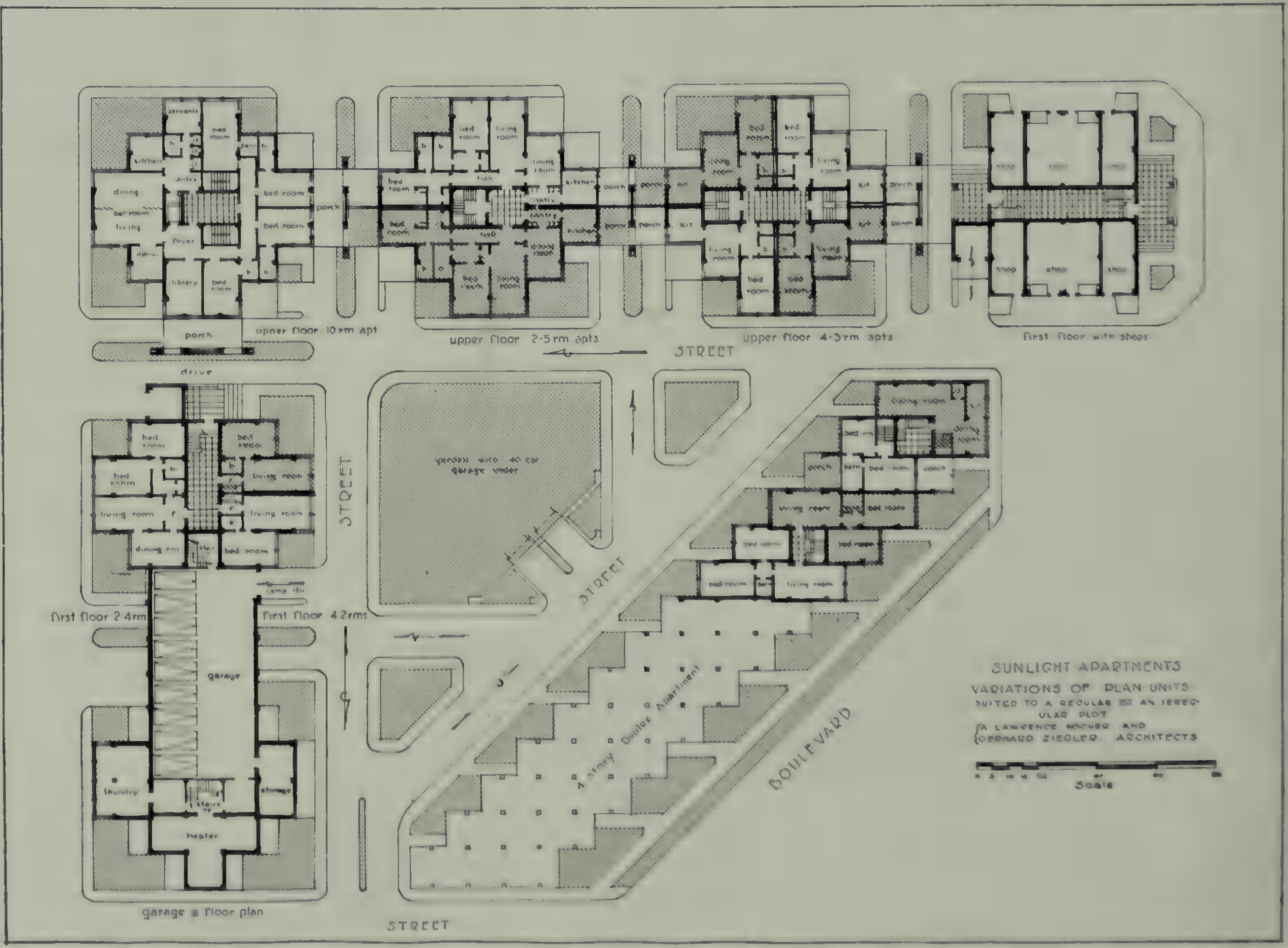


WESTCHESTER

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

An apartment tower placed in open country, accessible from city by rapid transit or airline and taking advantage of space for outdoor sports. The natural setting, with this tower form, need not be spoiled as is the case in the usual suburbs with a network of narrow streets and houses placed at close intervals





SUNLIGHT APARTMENTS

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

Horizontal development of "sawtooth units" with a row of low buildings and multifloor apartment towers at ends or angles of rows. Floor plans may be subdivided as 1, 3, 6 or 10 room apartments with garden porches and main entrances between buildings. The garage is placed underground so as to be entered from the private street on which the apartments front. With gardens on roof there will be practically no loss of ground space. Gardens at rear of buildings take the place of usual auto drives

IMPROVED AERATED CLAY BUILDING UNIT

In the October issue of The Architectural Record, we called attention to the experimental work conducted in Germany on light weight brick wall panels. These experiments are considered by leading architects and engineers as promising an important new building material. This article said, "It is generally conceded by European architects who have made a study of the housing problem and methods of reducing housing cost, that a wall material *must* be found which is more efficient than our present form of brick wall. Whether this wall panel, in the future, will be a new type of brick wall or metal may depend to a considerable extent on the forethought and experimentation of manufacturers."

It is of interest to note that the Structural Clay Tile Association have seen this need and have developed such a material in this country. We expect that this new material will be on the market at some time during the year. Although this experimental work has been under way for several years, details of the process have been kept secret until the convention held in Columbus, Ohio, February 12-14.

The research work on this material has been conducted by the Engineering Experiment Station of Ohio State University under the direction of George A. Bole, Professor of Ceramic Research, H. D. Foster, Senior Research Associate, and other employees.

The new product is an aerated clay weighing from ten to sixty pounds per cubic foot. For general building purposes, it will have a weight of thirty to thirty-two pounds a cubic foot, which is approximately one-quarter the weight of a cubic foot of brick. The compressive strength at this weight will be from five hundred to a thousand pounds per square inch, depending on the clay and the degree of burning.

LARGE SLABS

The outstanding feature of this material, aside from its excellent insulating and fireproofing qualities, is that it can be made in large slabs and used in much the same way as lumber or wall board. Slabs two to three inches thick, two to four feet wide and eight to ten feet high, with V-shaped, ship lap or tongue and groove joints, can be used for partitions and probably for exterior walls and roofs. For interior use, this may be left natural, plastered, or glazed.

GLAZED SURFACE FOR BATHS, KITCHENS, etc.

The material can be given a salt glaze in the course of manufacture at almost no additional cost, or it can be given a slip glaze of any desired color or combination of colors. It will thus be possible to have large units of structural wall with the additional advantage of tiled surface at a very greatly reduced material and labor cost as compared to tile.

GLAZED SURFACE FOR SPANDRELS, EXTERIOR WALLS, AND ROOFS

Experiments have not yet been conducted to determine the effect of freezing on this tile with a glazed surface but from experience with terra cotta and salt glazed clay products it seems probable that this material will stand up for external use. If such is found to be the case, it may be used in large panels for spandrels or exterior walls and possibly large roof panels. If used for roofing, the joints could be of Mastic or cement, or a weather-tight joint could be obtained by use of a copper weather-strip which would cover the joint between the slabs.

ACOUSTICAL USE

If sound absorption is desired, the interior walls may be without glaze. By using various clays and chemicals, a large variety of color effects may be obtained at time of manufacture. This material will have an advantage over many acoustical materials now on the market in that it will not be damaged by moisture and is excellent as fireproofing.

FIREPROOFING

The original purpose of the research was to find a highly efficient and light weight fireproofing product for protecting steel columns and girders. The other uses which have been discovered have grown out of the fireproof research.

A three-inch slab of this burned clay, unplastered, when subjected to the standard fire test (1200° F. at 10 minutes, 1550° F. at 30 minutes and 1700° F. at 1 hour) showed a rise in temperature of 250° F. at the end of one hour and twenty minutes which may be compared with thirty-four minutes for unplastered partition tile of equal thickness.

A fireplace constructed with a two-inch unglazed slab and four-inch backing with a one-inch face of glazed material is regarded as entirely safe. Although this material is intended for ordinary building construction, its fire resistance is so great that it will probably be used for furnace lining where refractory brick is desired. This material may be raised to 2000° F. and quenched in water without damage.

A special block form has been made which may be hung on the under side of steel joists for fireproofing, sound insulation, and sound absorption. When hung on the underside of the steel floor system, the cellular construction would not only give accoustical absorption within a room but the upper surface would absorb sound from the floor above.

HEAT INSULATION

Experiments and test data indicate that this aerated clay will have approximately the same insulating value as aerated gypsum of similar weight under actual building conditions. A three-inch wall with two glazed surfaces will have a heat transmission factor of approximately .25 B.t.u., which may be compared with .27 B.t.u. for thirteen-inch brick wall, .20 B.t.u. for twelve-inch hollow tile with stucco finish, or .60 B.t.u. for four-inch hollow clay tile one-half inch plaster on both sides.

An outstanding advantage in the use of this material for insulation is the airtight and watertight glaze coating which will prevent the entrance of moist air and the consequent reduction in insulation value. If, for decorative or acoustical purposes, it is desired to avoid a glaze finish the glazed blocks can be manufactured with a surface of unglazed material over an under coating of glaze.

BLOCKS

Blocks of regular size and shape may be cut by use of wire at the end of the conveyor belt. The cells may be left open when desired for plaster base or a slip (clay of creamy consistency) applied if a smooth glaze is desired. Slabs of this material 1″ x 24″ x 24″ may be burned in twelve hours at a temperature of 2000° F. with practically no warping and with only a shrinkage of from three to five per cent between green and dry dimensions.

LARGE UNITS

Large units for use as partitions or insulation may be manufactured by first burning the material in slabs 1′ to 2′ thick, 2′ to 8′ wide and 10′ or longer. (The width and length will be determined by use to be made of the material and possibly limited by difficulties in handling the longer pieces. At the present time it will be possible to make slabs with the two-foot cross-section and ten feet long, these units to be fired without glaze and then sawed in much the same manner as a log would be sawed. The material cuts more easily than soft wood. This slab can be sawed into any shape or thickness desired and can be run through wood-working machines for molding or other decoration. The material may be used as cut if it is desired or it may be given a mottled or smooth glaze by refiring if such a finish is desired.

LARGE GLAZED UNITS

Large glazed units for use for bathroom or kitchen walls or other places where a tile finish is desired can be made by cutting the material either in the green or fired state, to the desired size and applying a salt glaze, or color slip finish.

COSTS

In absence of any definite authoritative estimates we have prepared our own estimate, the overhead and profit items of which are based on sales prices of hollow clay tile in the Chicago district. This estimate indicates that the new material may be sold at approximately two cents per board foot. These estimates would seem to be conservative in view of the fact that the weight per unit is less and the power requirements are considerably less than for hollow clay tile.

SAVINGS IN BUILDING COSTS

Although the cost of the new aerated clay units may be approximately the same per volume or weight as hollow tile blocks, very considerable savings would be effected through combining in one unit structural fireproofing and other functions which now require a variety of additional materials.

The new material may replace many of the separate materials generally required to obtain a finished wall such as: plaster for interior finish; interior tile or exterior terra cotta for a glazed surface; asphaltic or other materials for waterproofing; cork or other materials for heat insulation; and concrete for fireproofing of structural steel; not to mention various sound absorptive materials.

Editor's Note:—In the April issue of the RECORD will be described a new clay product which is being developed by Joseph B. Shaw, Head of the Department of Ceramics of Pennsylvania State College. In his process "the equipment and processes of the steel industry replace in large measure those of the present day ceramic plant. The product receives its ultimate shape by pressing or rolling.—The articles so shaped . . . will have properties enabling them to replace steel and concrete in many places . . . these units may be produced in units up to 8′ x 20′ in size." (Extract from letter from Mr. Shaw and from his article to appear in the March 1st issue of the *Journal of the American Ceramic Society*.)

EFFICIENCY METHODS APPLIED TO KITCHEN DESIGN

Even the best and most efficient of our present day apartment kitchens fall far short of the efficiency methods which are being applied to industrial processes. Some attention has been paid in kitchen planning to the problem of correct routing of work *but almost no attention has been given to the equally important problems of circular work spaces and correct working heights for each individual. For example, the generally accepted height of 36″ may be right for thirty or forty percent of the women and quite inconvenient for the balance. The study which follows is the outgrowth of the belief of Miss Mary Dillon, President of the Brooklyn Borough Gas Company, that kitchens needed engineering thought in order to reduce effort. She therefore engaged an efficiency engineer, Dr. Lillian M. Gilbreth, to study the kitchen as an industrial production problem. The outstanding conclusion of this study was that the modern kitchen, although it possesses many attractive appliances and appears to be efficient, is far from approaching the efficiency standards that prevail in the best industrial plants.*

PROCEDURE IN MAKING KITCHEN EFFICIENCY STUDIES

Statement of Problem

The first step in the preparation of an efficiency study of a kitchen, is to state the conditions in definite terms: 1st, general statement of use, space, time and money requirements, and 2nd, material requirements for storage, transportation, containers, preparation, operations, and clean-up.

It was assumed that the kitchen was to serve and be used by a family (father, mother, baby and a child old enough to help a little with the work). The same operation principle applies to a house with a maid.

Space

The study as conducted was limited by the fact that the kitchen size had to be approximately 10′ and 12′ in order to utilize the space assigned for this kitchen in the Exposition of Woman's Arts and Industries. And the problem was further complicated by the necessity of providing space for the passage of visitors but the principles of the circular work spaces, posture of the worker, etcetera (as illustrated) can be applied to other sizes of kitchens or other working room.

Material Requirements

In order to better illustrate the principles of efficiency engineering, a simple problem, the making of a cake, was selected. The material requirements were refrigerator, kitchen cabinet, stove, sink, service table, dish cupboard and dining table.

Analysis of Processes

An ordinary kitchen, see plan on next page, was assumed and all the processes involved in making cake in this kitchen gone through. Fifty operations were noted and a total of 143 feet would be walked in the preparation of this cake. The analyses of this project are shown in the adjoining Process Chart.

Making Efficiency Plan

The method of working our plan which would reduce the number of processes was quite simple with the cooperation of Miss Jane Callaghan of the Brooklyn Gas Company. Dr. Gilbreth made scale drawings of the furniture which were then cut from stiff paper and moved about on a floor plan and the length of the worker's reach, roughly half the distance from finger tip to finger tip when the arms are outstretched sideways—was taken on the compasses and used to test each grouping.

A drawing was made of the best arrangement and the process chart revised accordingly.

When a string plan was made on the improved layout, it was found that only about one-sixth the original amount of walking was required, and all of it was "get ready" and "clean up" and none of it in the actual making of the cake.

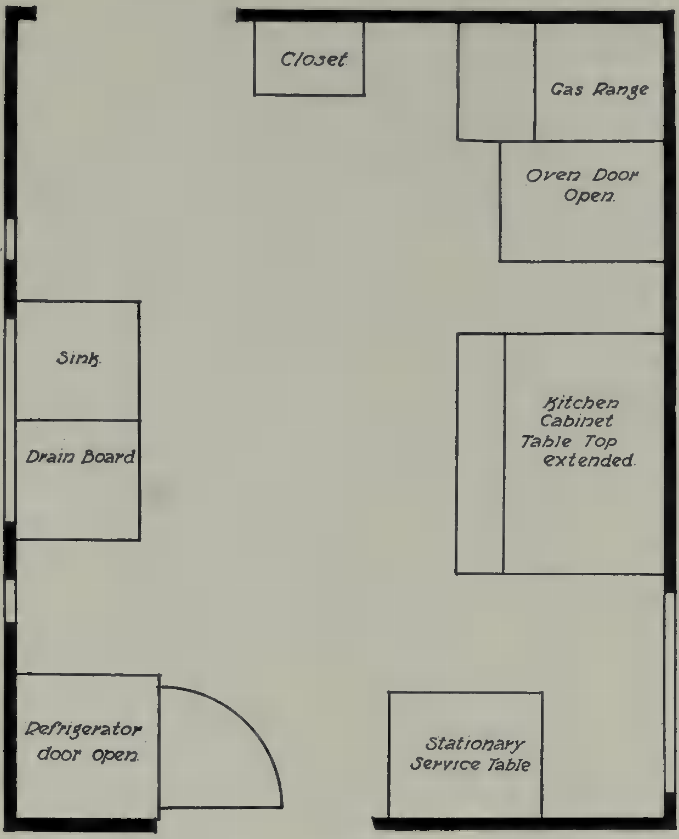
This rearrangement of the equipment resulted in reducing the number of operations from 50 to 24 and reduced the distance to be walked from 143 feet to 24.

Routing

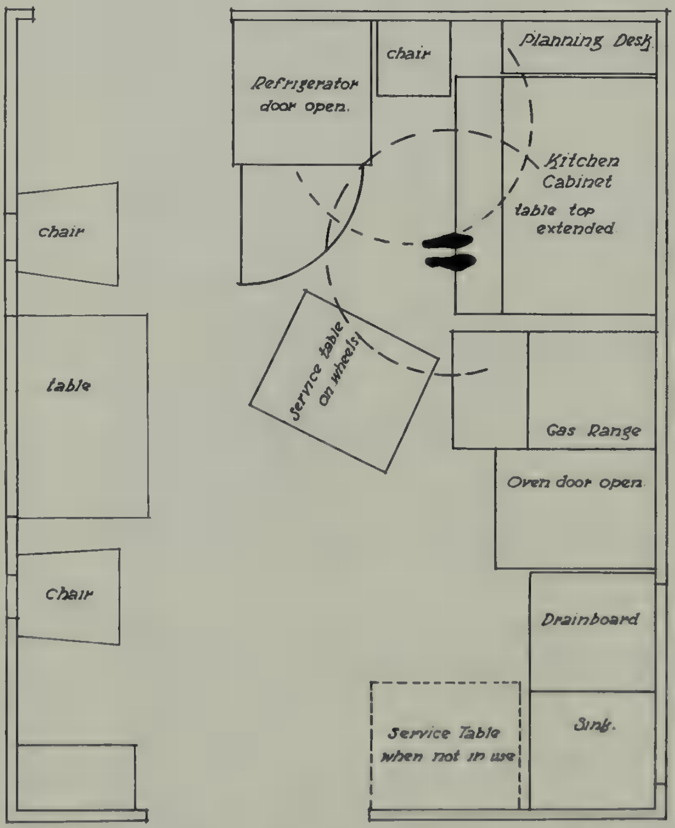
The relationships of equipment obtained by an analysis of the process was related to the room and to other processes. The delivery man deposits milk, eggs, and groceries inside the rear door without having to go through the kitchen. The homemaker places them with little effort inside the refrigerator and kitchen cabinet. Cooking materials are then transported with little effort to the cabinet table and prepared for the stove. Food when cooked is routed from stove to sink or service table, from thence to dining table and after the meal to refrigerator, cabinet, sink, et cetera, as the case may be.

Circular Work Space

The circular work space idea has been carried through in the planning of this kitchen. If the housewife stands at the point indicated by the footprints on the floor plan, she is within easy reach of the major portion of the equipment which needs to be used in most cooking projects. The chair before the planning desk forms the center of a circular work space which would be used while planning meals or ordering. Other centers would be set up for other processes such as dish washing, where the movable service table would function.



ORIGINAL KITCHEN LAY-OUT: 50 PROCESSES AND 143 FEET OF WALKING



IMPROVED KITCHEN LAY-OUT: 24 PROCESSES AND 24 FEET OF WALKING

PROCESS CHART
MAKING A COFFEE CAKE
ORIGINAL LAYOUT OF KITCHEN

① Light oven
② Walk to kitchen cabinet
③ Open kitchen cabinet, assemble recipe and dry ingredients
④ Walk to closet
⑤ Assemble pans, bowls, spoons, etc.
⑥ Carry pans, etc. to kitchen cabinet
⑦ Assemble pans, etc. on kitchen cabinet
⑧ Carry pans, nuts, sugar-and-cinnamon to table
⑨ Assemble pans, etc. on table
⑩ Walk to refrigerator
⑪ Open refrigerator, collect eggs, milk, butter and oil. Close refrigerator
⑫ Carry eggs, etc. to kitchen cabinet
⑬ Assemble eggs, etc. on kitchen cabinet
⑭ Measure ingredients
⑮ Carry butter to stove
⑯ Place butter on stove to melt
⑰ Return to kitchen cabinet
⑱ Carry oil to table
⑲ Grease pans
⑳ Return to kitchen cabinet
㉑ Mix cake
㉒ Carry cake to table
㉓ Pour cake into pans
㉔ Walk to stove
㉕ Carry melted butter to table
㉖ Put butter, sugar-and-cinnamon and nuts on cake
㉗ Carry cake to oven
㉘ Place cake in oven
㉙ Remove cake from oven
㉚ Carry cake to table
㉛ Remove cake from pans and set to cool
㉜ Carry remaining supplies to kitchen cabinet
㉝ Place recipe, nuts and sugar-and-cinnamon in kitchen cabinet
㉞ Carry remaining milk, butter and oil to refrigerator
㉟ Place milk, etc. in refrigerator
㊱ Return to kitchen cabinet
㊲ Assemble used utensils
㊳ Carry used utensils to sink
㊴ Walk to table
㊵ Carry used pans to sink
㊶ Wash and dry utensils and pans
㊷ Carry utensils and pans to closet
㊸ Place utensils and pans in closet
㊹ Return to sink
㊺ Carry dish cloth to kitchen cabinet
㊻ Wipe off and close kitchen cabinet
㊼ Carry dish cloth to table
㊽ Wipe off table
㊾ Carry dish cloth to sink
㊿ Tidy sink, wash dish cloth and towels and hang to dry

PROCESS CHART
MAKING A COFFEE CAKE
IMPROVED LAYOUT OF KITCHEN

① Light oven (covers 1)
② Walk to kitchen cabinet and adjust service table
③ Open kitchen cabinet, assemble recipe, dry ingredients, pans and utensils on kitchen cabinet and service table (2,3, 4,5,6,7,8,9)
④ Open refrigerator, collect eggs, milk, butter and oil (10,11,12)
⑤ Assemble eggs, etc. on kitchen cabinet (13)
⑥ Measure ingredients (14)
⑦ Place butter on stove to melt (15,16,17)
⑧ Grease pans (18,19,20)
⑨ Mix cake
⑩ Pour cake into pans (22,23)
⑪ Reach for melted butter, put butter, sugar-and-cinnamon and nuts on cake (24,25,26)
⑫ Place cake in oven (27,28)
⑬ Turn off oven and remove cake from oven (29)
⑭ Place cake on service table, remove from pans, set to cool(30,31)
⑮ Place recipe, nuts and sugar-and-cinnamon in kitchen cabinet (32,33)
⑯ Place milk, etc. in refrigerator (34,35,36)
⑰ Place utensils on service table (37)
⑱ Move service table to sink (38,39,40)
⑲ Wash and dry utensils and pans and place on utility table. Add dish cloth
⑳ Move service table to kitchen cabinet (42,44,45)
㉑ Replace pans and utensils in kitchen cabinet (43)
㉒ Wipe off and close kitchen cabinet (46,47,48)
㉓ Carry dish cloth to sink (49)
㉔ Tidy sink, [illegible] dish cloth and towels and hang to dry (50)

APPLICATION OF MOTION STUDY TO KITCHEN PLANNING: MAKING A CAKE

In this kitchen there has been a very careful attempt to stress the proper height of work place and equipment. A woman 5′ tall was selected as the housewife and everything possible adjusted to fit her. The work place was measured in its relation to the height of the elbows of the worker when standing. (She should stand erect with arms comfortably relaxed and the work place be so arranged that she may do the work with greatest comfort in that posture.) When she is seated, her work place should remain at the same relative height to her elbows. In the selection of the equipment certain heights had of course to be considered, the working surfaces in the refrigerator, the height of the working surface of the stove and kitchen cabinet. It was possible to make heights only relatively right by selection of legs of equipment bringing it to most nearly the right height, raising the height of the work table, selection of such smaller pieces of equipment as will keep the worker as nearly as possible in the right relation to her work.

EQUIPMENT

Planning Desk

This is perhaps one of the most important new additions to equipment of efficiency kitchen and one that is seldom provided. The home maker can check the supplies in the refrigerator and the kitchen cabinet from her chair by the planning desk. Receipts, cook books and bills are kept in this desk.

Kitchen Cabinet

The kitchen cabinet was one of the newest and most efficient on the market but Dr. Gilbreth says, "From the standpoint of the efficiency engineer all kitchen cabinets need to be restudied by their manufacturers. The aims are excellent but they have not been thought through in terms of final use in connection with other equipment. The selection of this model cabinet, and the fact that it is possible and advisable to place it near the stove, has far reaching effects on the placing of cooking materials, utensils, etc."

"An efficient kitchen cabinet *should be flexible as to height*. The working surface should as nearly approximate a correct work place as is possible. This thing *has not been considered in any kitchen cabinet now on the market which I have seen*. Drawers, cupboard, etc., which are all a part of it should be arranged so as not to interfere with the comfort of the seated user. Doors should be made so as not to interfere with the use of any part of the cabinet when open or with the use of the stove, the sink, the work table, or anything else used in conjunction with the kitchen cabinet."

The kitchen cabinet should not be designed as an attractive piece of furniture into which various types of equipment used in cooking can be put, but as an efficient and attractive container making as many as possible of the things used in cooking available to the user with the fewest and most comfortable motions. The *operations* done in the kitchen *should be studied;* the materials and equipment for these operations placed in the best positions possible and the kitchen cabinet built around these.

Refrigerator

The refrigerator chosen was the model separate from the stove, as it was felt that the combination refrigerator and stove did not offer sufficient refrigeration space for the family of four. The white model was chosen as apt to fit into more color schemes and perhaps suggesting absolute cleanliness to the housewife. The size was that thought best fitted to her needs and her purse.

The *refrigerator is still handicapped in design* by the old type of refrigerator which required ice. It should be possible to make a refrigerator more nearly meeting the needs of the individual user. The present refrigerator is so high that its top cannot be used for a work place. There might be flexibility as to the placing of the various shelves and compartments, to suit the varying food supply of the family using the refrigerator. The new type of refrigerator comes into the kitchen and might serve many purposes which it could not serve when it was out of doors.

In time a refrigerating *unit* may be designed, this to be housed in a container which will fit into the kitchen-unit.

Stove

The stove was selected primarily because of its safety features. Those are imperative with small children in the family. Not only do the safety devices on the handles controlling the gas make this an especially desirable model where children come into the picture, but the attachment for the kettle and other cooking utensils for long, slow time cooking, serves as a protective device for children who might otherwise tip some hot food over on themselves. The surface of the range should be such as to make it comfortable to use when standing. The heights of ovens, etc., should be thought through with reference to both standing and sitting users. The circular work place should be considered here also. As in the case of the kitchen cabinet, all uses of the stove should be considered and the easiest motions for these used. The stove should then be designed to make these easy motions possible.

Sink

One cannot use any sink available for dishwashing efficiently without adding such accessories as rubber mats, wooden racks, and a basket for drying dishes. These aids to dishwashing should be incorporated in a unit sink set up, or better still a sink may be invented making such accessories unnecessary. The electric dish washers now on the

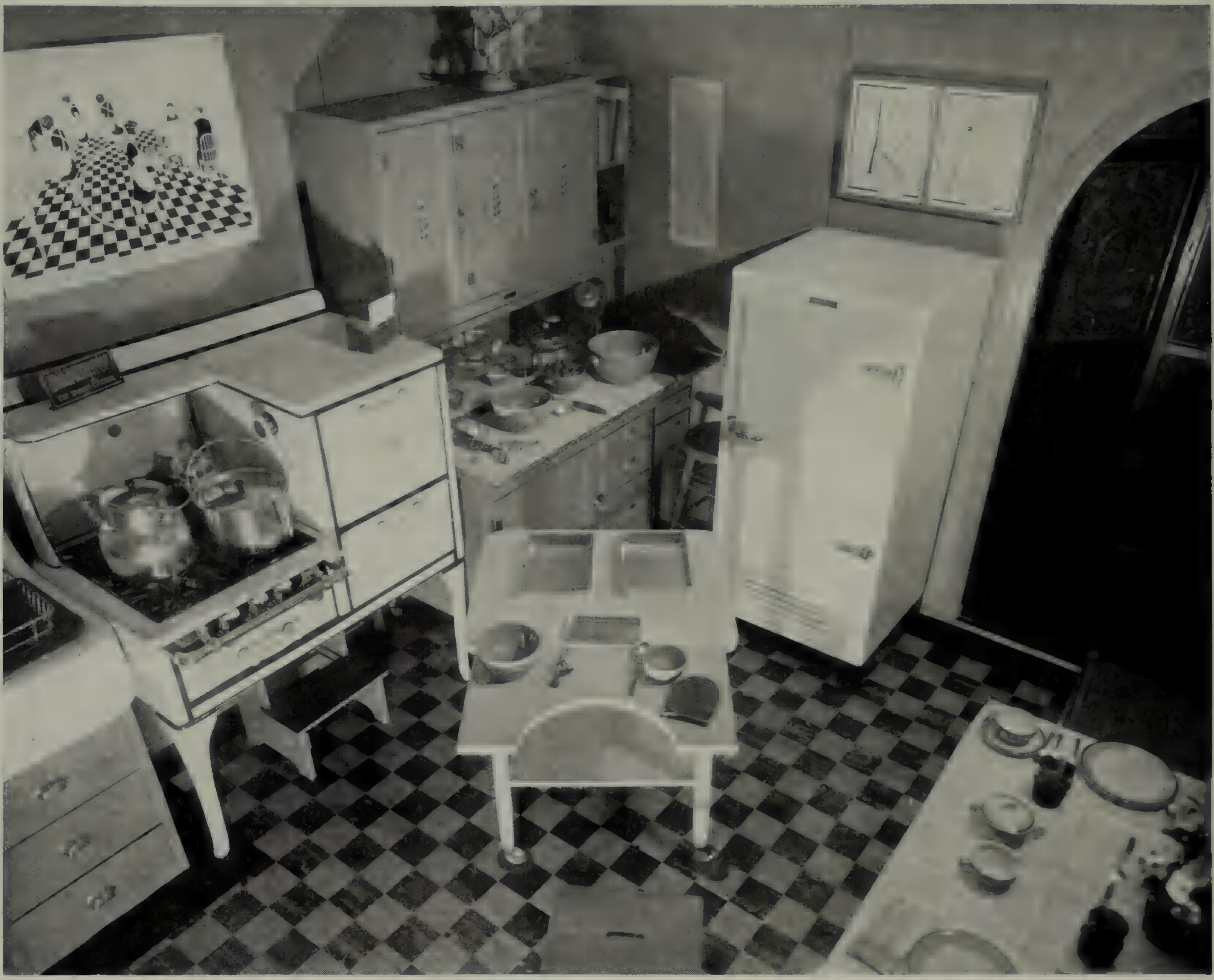


Photo. Lazarnick

DEMONSTRATION KITCHEN OF BROOKLYN BOROUGH GAS COMPANY, BASED ON MOTION STUDY (*See text*)

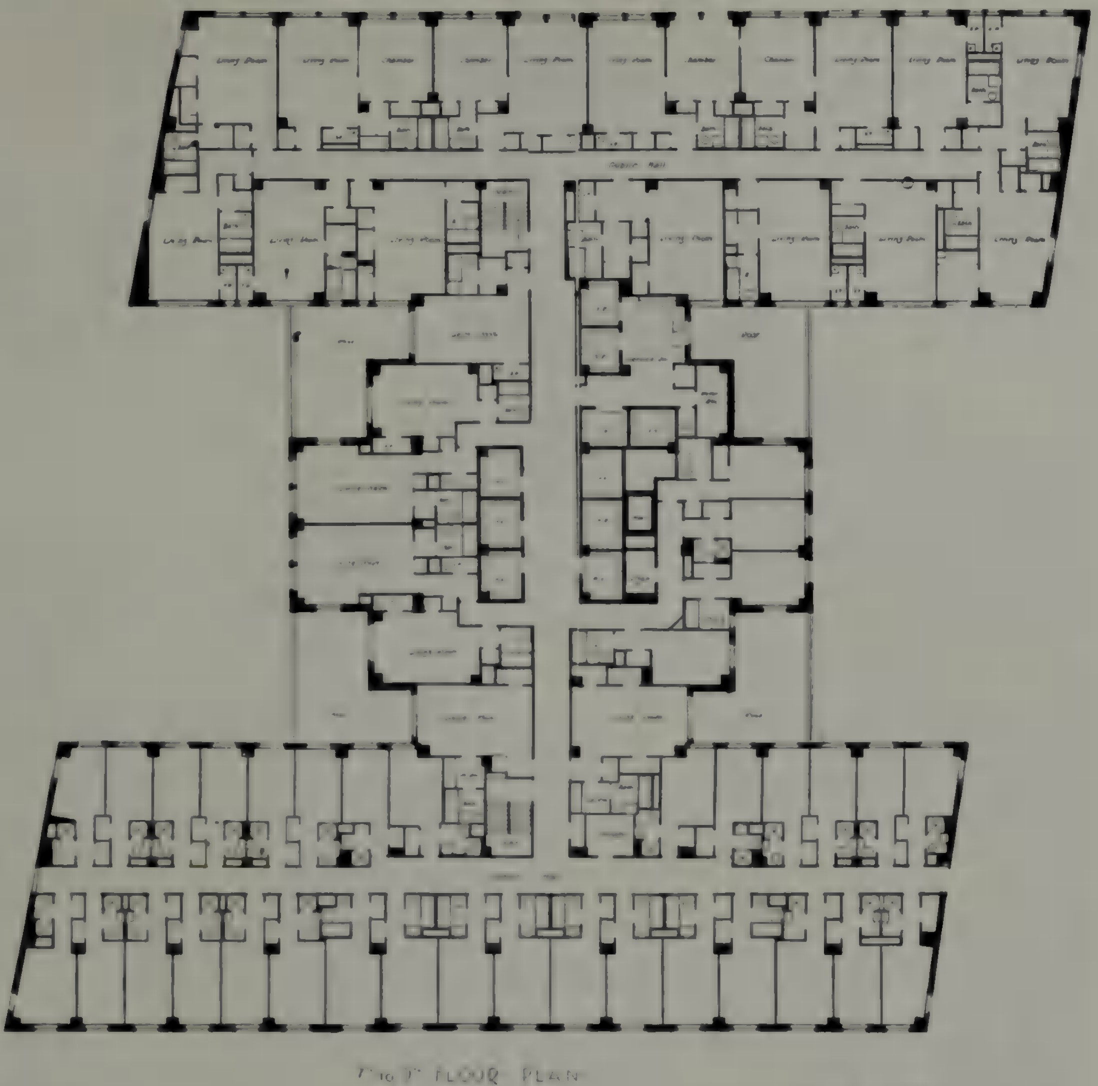
market are too expensive for the average medium priced small apartment.

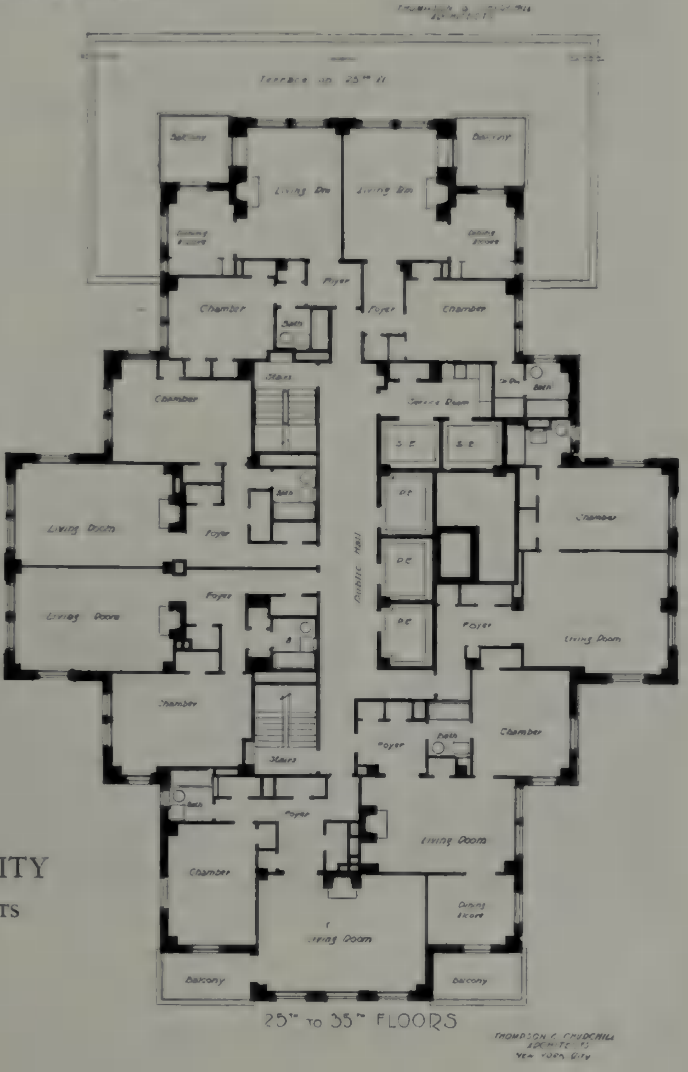
SERVICE TABLE

The service table selected was chosen largely because of its availability. Its first purpose was to serve as the second drain-board but it is to be used also as a transportation device and auxiliary work place. The height of working surfaces was studied in relation to the height of the worker. Standing erect with arms comfortably relaxed to the elbows she should be able to work without stooping or having to lift her hands above the level of the elbows. The height of the work chair is adjusted to maintain this same relationship when the worker is seated.

Summarizing this kitchen study, Dr. Gilbreth says, "There are a certain number of suggestions which it is hoped this kitchen will make to the homemaker and to those who serve her in retailing and manufacturing. One is that a *home is a complete project* and anything in it, *no matter how small*, must be thought of in connection with *this complete project*. In a smaller way *the operation of the kitchen is a complete project and must be thought through as such.* Buying any piece of equipment, large or small, should be considered in its final use; otherwise it is very wasteful.

The manufacturer must realize that at present he has little knowledge of what the housewife needs. She herself seldom knows what she wants, much less what she needs. The progressive manufacturer must determine the work his product should do and then make that product in such a way that it will do this work for its purchaser most effectively. The home maker has certain physical and emotional qualities, peculiarities and limitations which he should try to understand and satisfy. He must remember not only that his product is used by a person with individuality but must also fit into a circular work space. Unless manufacturers think along these lines the engineer, architect and home economist will combine on projects to supplant existing equipment in the home."





BATTERY TOWER, NEW YORK CITY

THOMPSON AND CHURCHILL, ARCHITECTS

(See frontispiece)

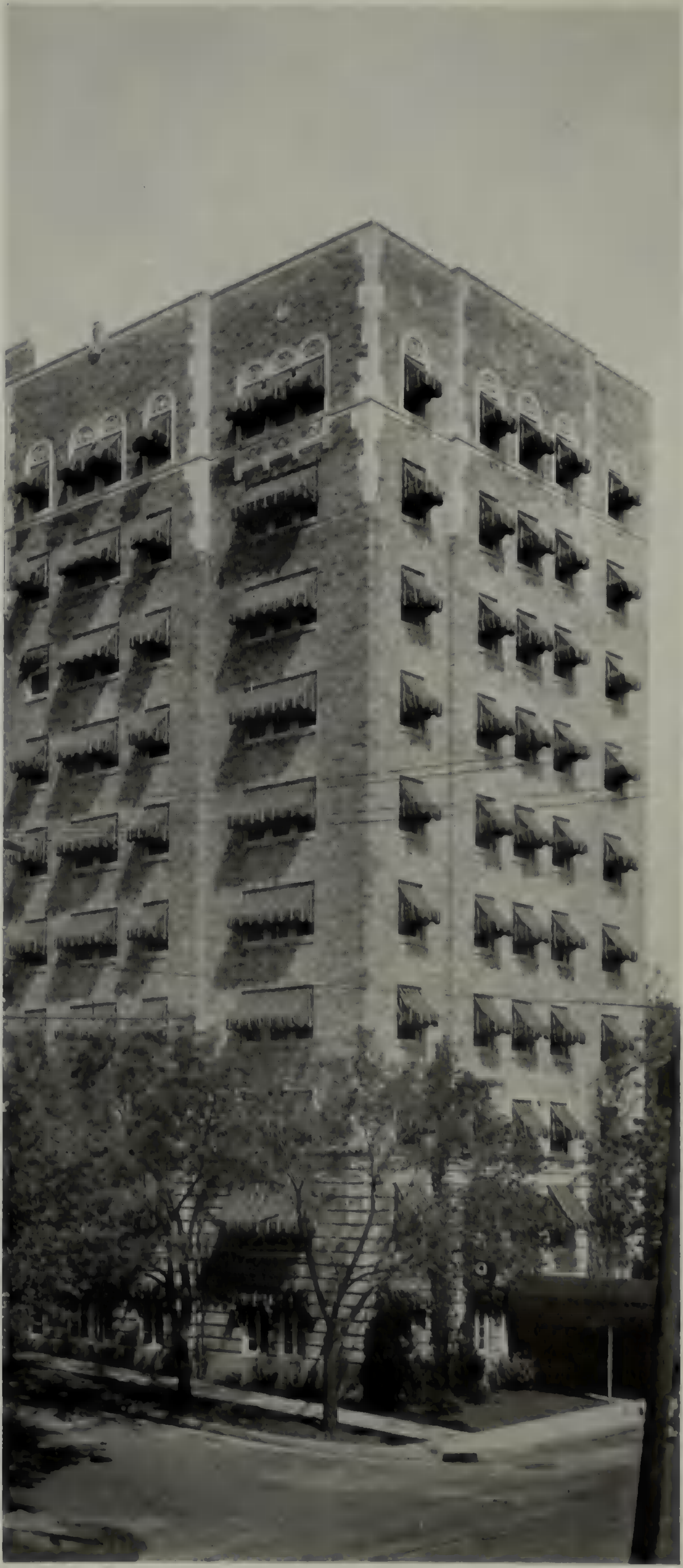


Photo. The Howards

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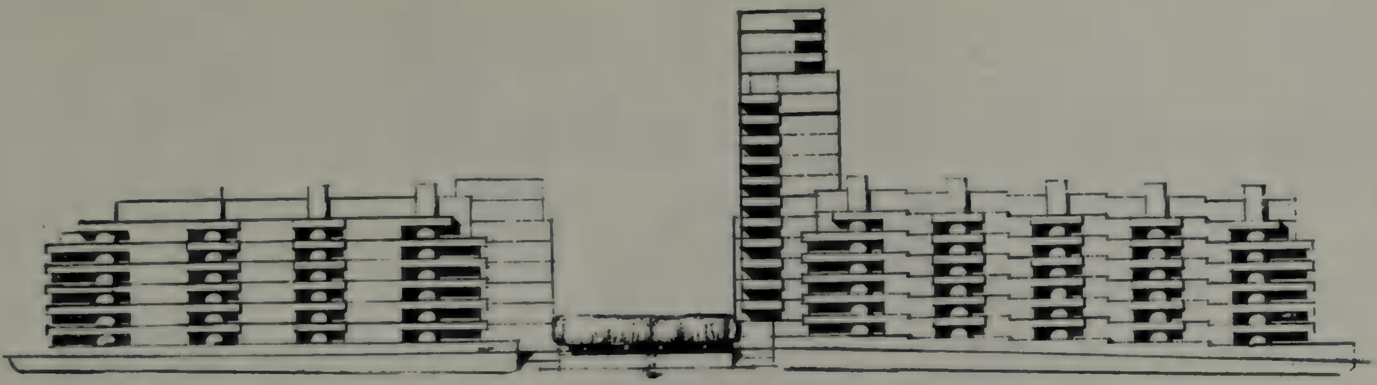


ELEVATION FROM THE STREET

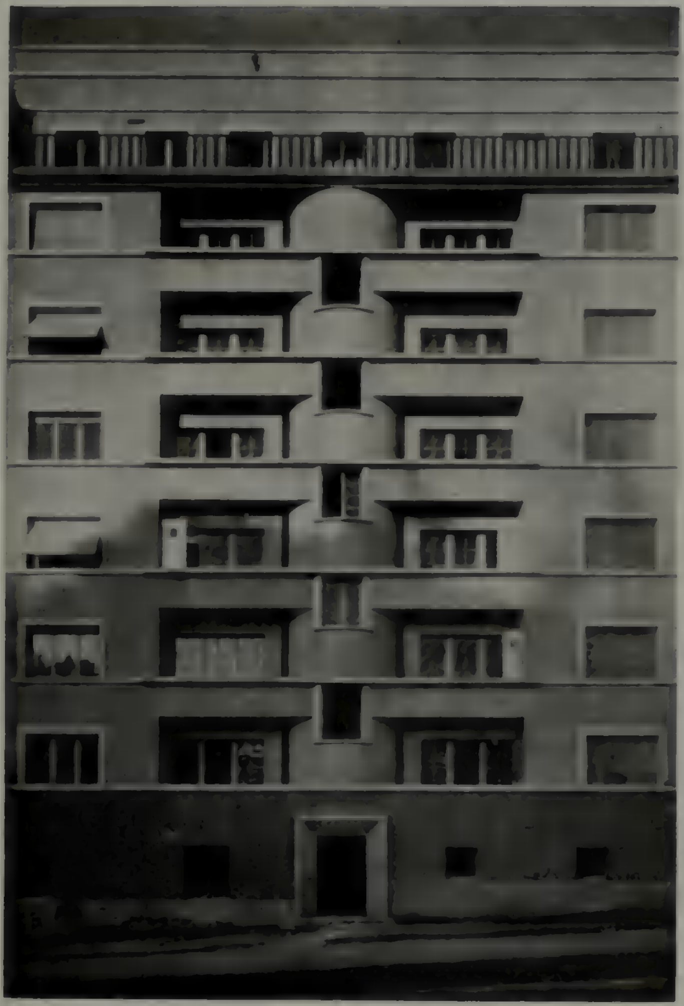
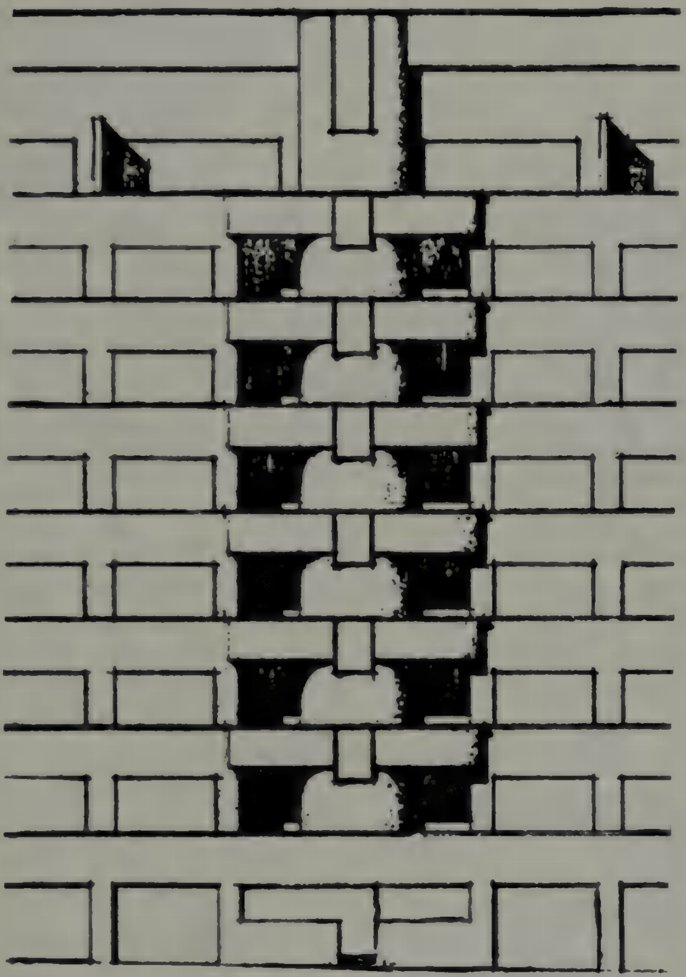


Photo. Das Werk

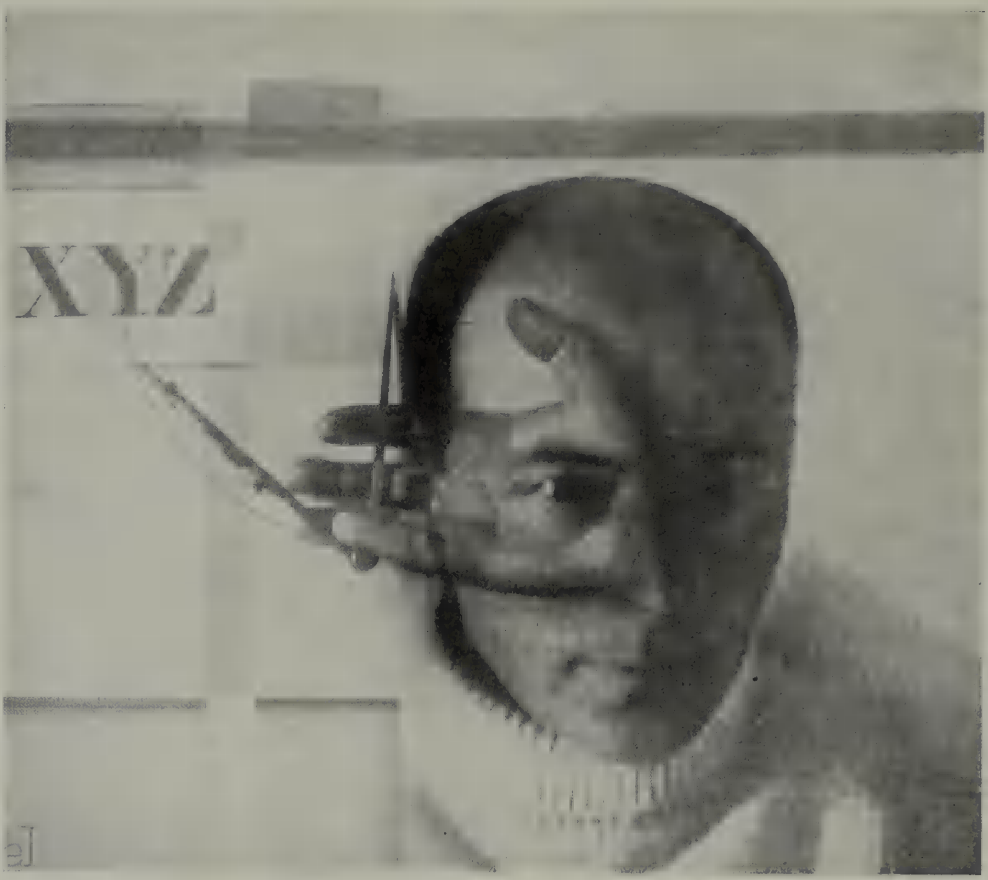
STREET FACADE



DETAIL OF ELEVATION

APARTMENT GROUP, QUARTIER DES DEUX-PARCS, GENEVA, SWITZERLAND

BRAILLARD ET VIAL, ARCHITECTS



PHOTOGRAPHIC
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THEATRES

Joseph Urban
Theatre Arts, Inc. New York, 1929.

Every type of drama, opera, and motion picture requires a setting—the theatre—for its specific purpose. In the six theatres designed by Joseph Urban and illustrated in this volume, the effort has been to differentiate between the principal elements of dramatic entertainment and to discover an expression for each appropriate site and use.

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The forty-nine illustrations include plans, sections, models, renderings and completed theatres.

PHOTO-EYE

Franz Roh and Jan Tschichold
foto-auge, Text in German, French and English, 76 illustrations, 1929; Akademischer Verlag, Stuttgart, 1929, $2.50.

The camera as utilized by the two authors and their associated contributors as a medium of pictorial *sport*. New possibilities for draftsmen, and photographer-reporters are rated secondary to the use of the camera by the amateur.

The book accepts the world as beautiful but it is also exciting, cruel and weird. Pictures were therefore included that might shock the sensibilities of some aesthetes. There are five kinds of applied photography represented. (1) the *reality-photo* with details of everyday life from new angles, brought out clearly; (2) the *photogram* which "hovers excitingly between abstract geometrical tracery and the echo of objects"; (3) *photo-montage*, produced by cutting and combining parts of different photographs; (4) photo combined with etching or painting; and (5) photos in relation to typography.

The statement is made that not to be able to handle a camera will soon be looked upon as equivalent to illiteracy.

MISDIRECTED ENTERPRISE?

Szukalski
Projects in Design. U. of Chicago Press, 1929. $20.

In the preface it is stated that "Stanislaw Szukalski is either worshipped or condemned—never treated with indifference." Well, here is almost complete indifference—punctuated by one sigh for the critical judgment of the University of Chicago Press. Whether in dealing with contemporary art the universities dwell in their accustomed formalism, or whether they turn for a change to such foolish Big Talk as this, their general lack of measure is equally painful.

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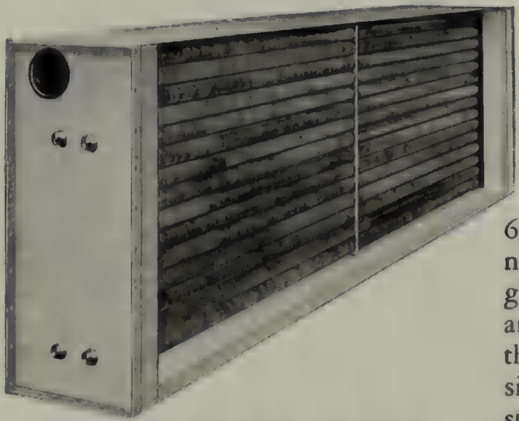

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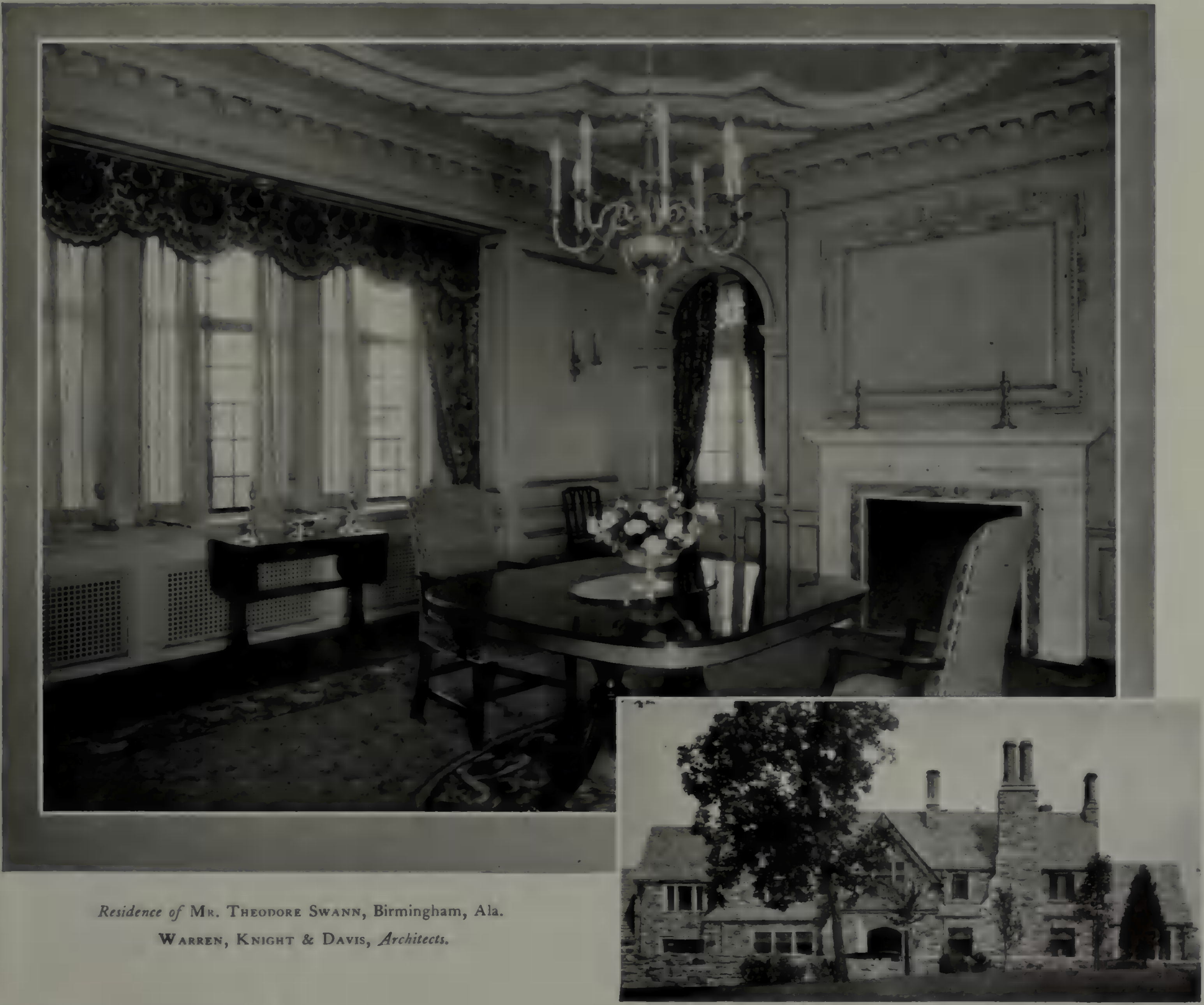

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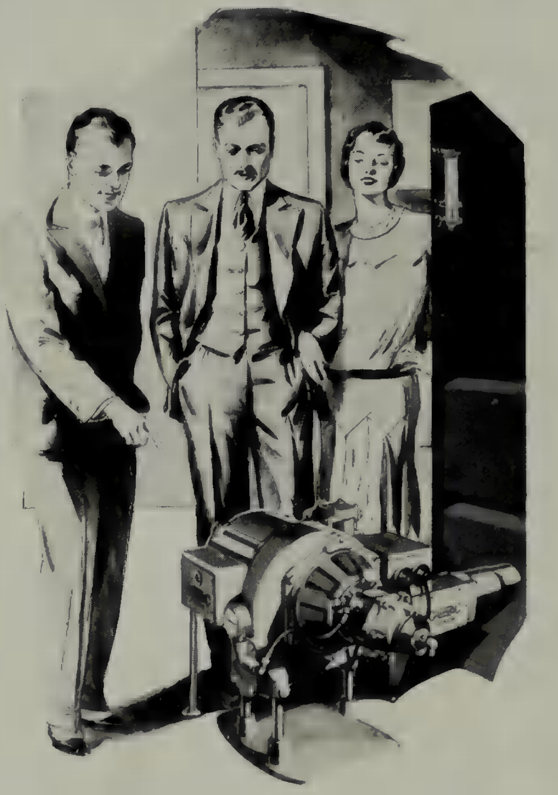

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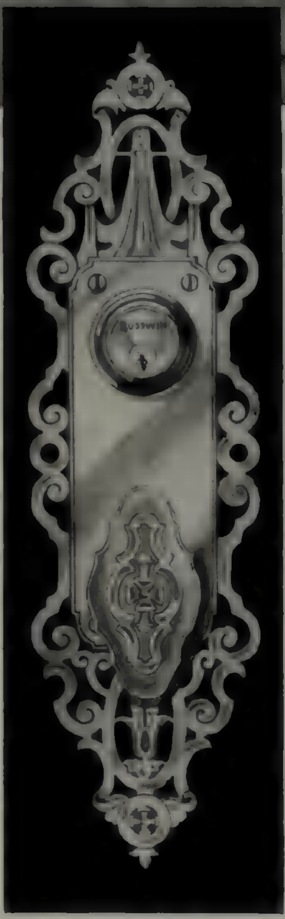

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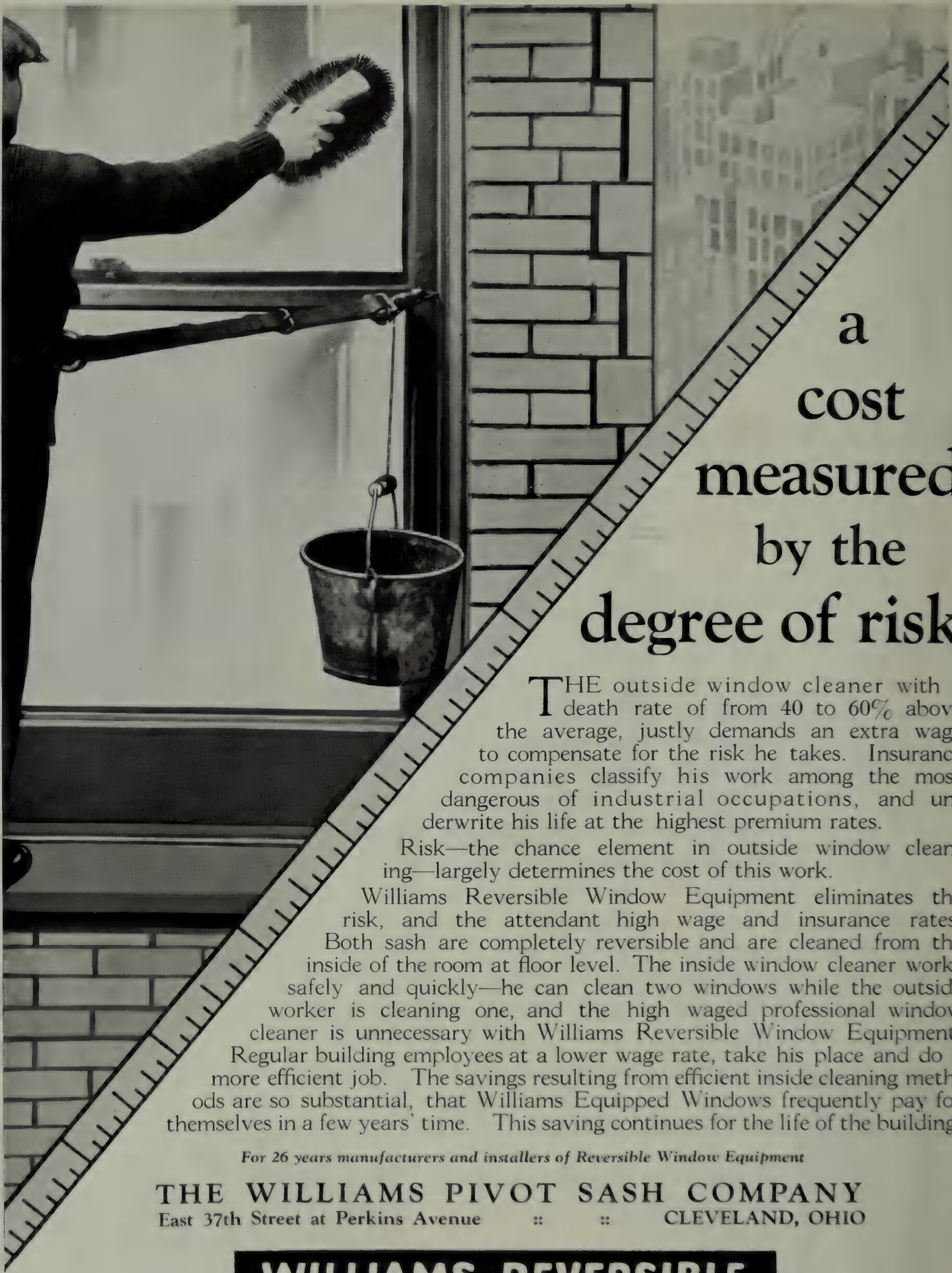

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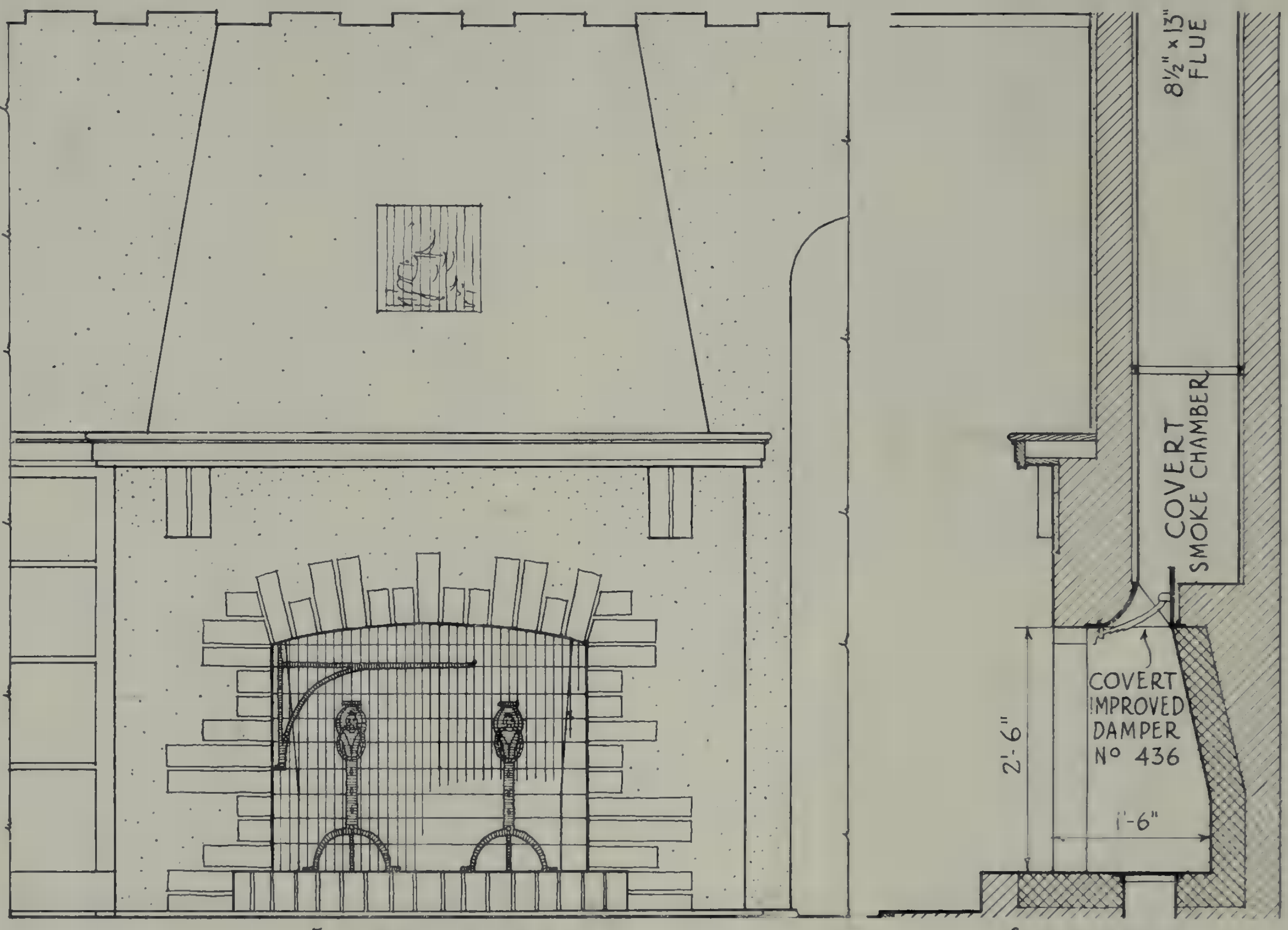

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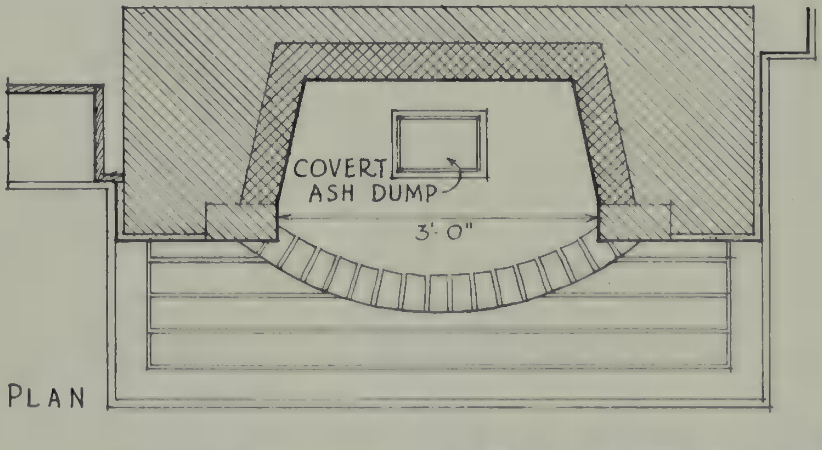

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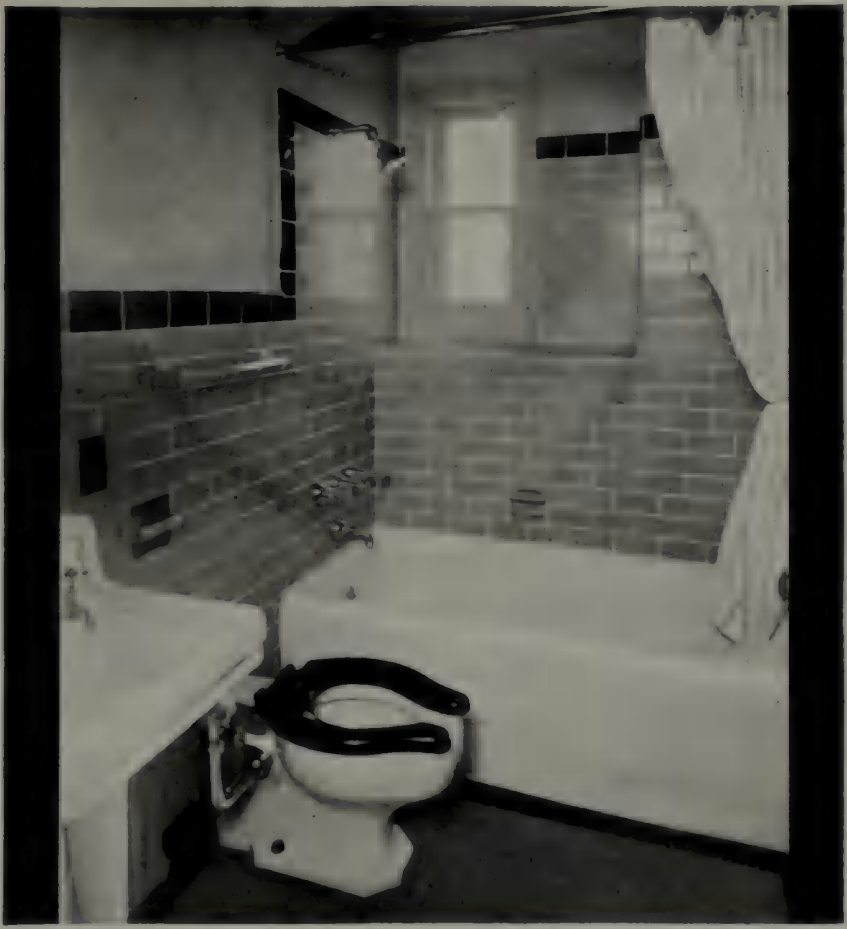

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"When we began the building of Cliff Towers we decided to procure the best products to be found in the nation.

"In plumbing, we naturally turned to Kohler of Kohler. Others may be good, but Kohler qualities have set the pace for a number of years. We were confident that Kohler fixtures would render long service.

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NEWARK, N. J.,
24 Commerce Street

NEW YORK CITY,
50 Church Street

PHILADELPHIA,
1700 Walnut Street

PITTSBURGH,
207 Fulton Building

SCRANTON,
Cedar Avenue

ST. LOUIS,
1514 Chemical Building

TORONTO,
2258a Bloor Street, West

TRENTON,
339 Broad St. Bank Bldg.

YOUNGSTOWN,
503 City Bank Building

WILKES-BARRE,
904 Second National Bank Building

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P-34

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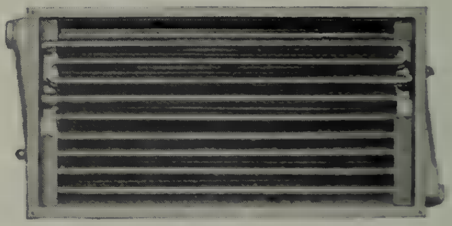

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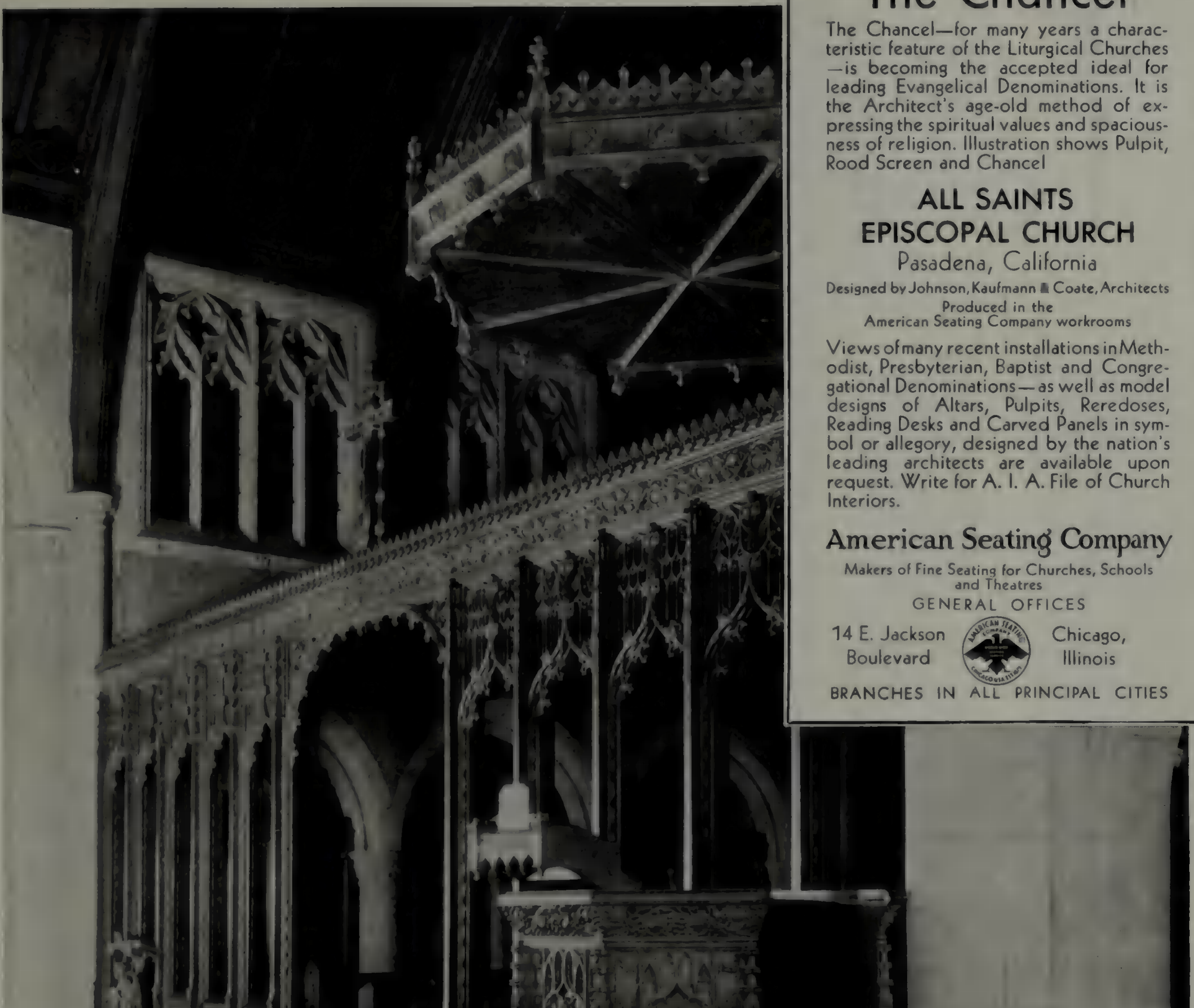

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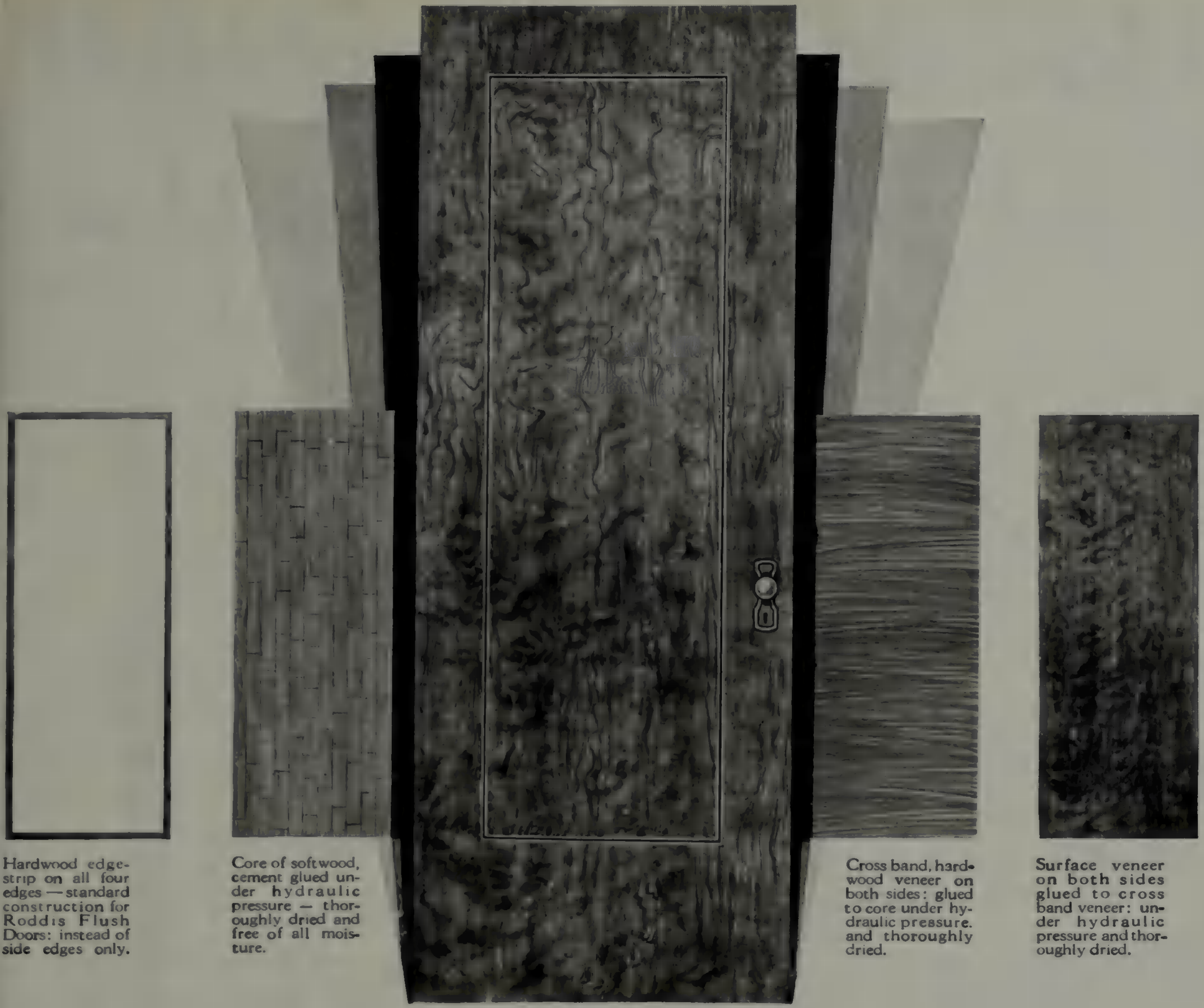
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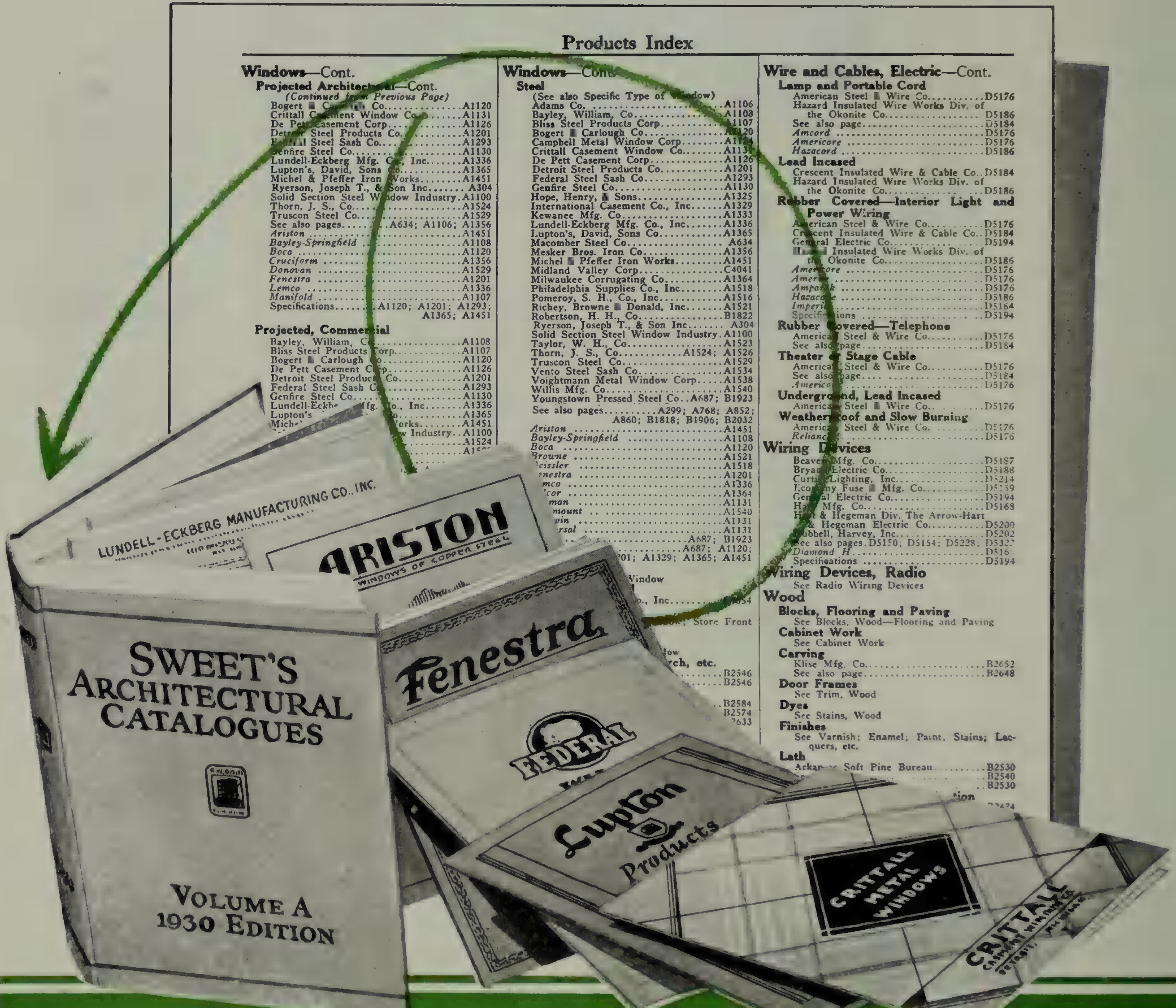

Products Index

Windows—Cont.
Projected Architectural—Cont.
(Continued from Previous Page)
Bogert & Carlough Co. A1120
Crittall Casement Window Co. A1131
De Pett Casement Corp. A1126
Detroit Steel Products Co. A1201
Federal Steel Sash Co. A1293
Genfire Steel Co. A1130
Lundell-Eckberg Mfg. Co., Inc. A1336
Lupton's, David, Sons Co. A1365
Michel & Pfeffer Iron Works A1451
Ryerson, Joseph T., & Son Inc. A304
Solid Section Steel Window Industry. A1100
Thorn, J. S., Co. A1524
Truscon Steel Co. A1529
See also pages A634; A1106; A1356
Ariston A1451
Bayley-Springfield A1108
Boco A1120
Cruciform A1356
Donovan A1529
Fenestra A1201
Lemco A1336
Manifold A1107
Specifications A1120; A1201; A1293; A1365; A1451

Projected, Commercial
Bayley, William, Co. A1108
Bliss Steel Products Corp. A1107
Bogert & Carlough Co. A1120
De Pett Casement Corp. A1126
Detroit Steel Products Co. A1201
Federal Steel Sash Co. A1293
Genfire Steel Co. A1130
Lundell-Eckh ... fg. Co., Inc. A1336
Lupton's ... Co. A1365
Mich ... Works A1451
... w Industry .. A1100
.... A1524

Windows—Cont.
Steel
(See also Specific Type of Window)
Adams Co. A1106
Bayley, William, Co. A1108
Bliss Steel Products Corp. A1107
Bogert & Carlough Co. A1120
Campbell Metal Window Corp. A11
Crittall Casement Window Co. A113
De Pett Casement Corp. A1126
Detroit Steel Products Co. A1201
Federal Steel Sash Co. A1293
Genfire Steel Co. A1130
Hope, Henry, & Sons A1325
International Casement Co., Inc. A1329
Kewanee Mfg. Co. A1333
Lundell-Eckberg Mfg. Co., Inc. A1336
Lupton's, David, Sons Co. A1365
Macomber Steel Co. A634
Mesker Bros. Iron Co. A1356
Michel & Pfeffer Iron Works A1451
Midland Valley Corp. C4041
Milwaukee Corrugating Co. A1364
Philadelphia Supplies Co., Inc. A1518
Pomeroy, S. H., Co., Inc. A1516
Richey, Browne & Donald, Inc. A1521
Robertson, H. H., Co. B1822
Ryerson, Joseph T., & Son Inc. A304
Solid Section Steel Window Industry. A1100
Taylor, W. H., Co. A1523
Thorn, J. S., Co. A1524; A1526
Truscon Steel Co. A1529
Vento Steel Sash Co. A1534
Voightmann Metal Window Corp. A1538
Willis Mfg. Co. A1540
Youngstown Pressed Steel Co. .. A687; B1923
See also pages A299; A768; A852; A860; B1818; B1906; B2032
Ariston A1451
Bayley-Springfield A1108
Boca A1120
Browne A1521
eissler A1518
enestra A1201
mco A1336
cor A1364
man A1131
mount A1540
win A1131
rsal A1131
.... A687; B1923
.... A687; A1120;
01; A1329; A1365; A1451
Vindow
o., Inc. ....
, Store Front
low
rch, etc.
.... B2546
.... B2546
.... B2584
B2574
633

Wire and Cables, Electric—Cont.
Lamp and Portable Cord
American Steel & Wire Co. D5176
Hazard Insulated Wire Works Div. of the Okonite Co. D5186
See also page D5184
Amcord D5176
Americore D5176
Hazacord D5186
Lead Incased
Crescent Insulated Wire & Cable Co. D5184
Hazard Insulated Wire Works Div. of the Okonite Co. D5186
Rubber Covered—Interior Light and Power Wiring
American Steel & Wire Co. D5176
Crescent Insulated Wire & Cable Co. D5184
General Electric Co. D5194
Hazard Insulated Wire Works Div. of the Okonite Co. D5186
Americore D5176
Amer D5176
Ampa k D5176
Hazac e D5186
Imperi D5184
Specifications D5194
Rubber Covered—Telephone
American Steel & Wire Co. D5176
See also page D5184
Theater or Stage Cable
American Steel & Wire Co. D5176
See also page D5184
Americo D5176
Underground, Lead Incased
American Steel & Wire Co. D5176
Weatherproof and Slow Burning
American Steel & Wire Co. D5176
Relianc D5176
Wiring Devices
Beaver Mfg. Co. D5187
Bryant Electric Co. D5188
Curtis Lighting, Inc. D5214
Economy Fuse & Mfg. Co. D5159
General Electric Co. D5194
Ha Mfg. Co. D5168
H & Hegeman Div. The Arrow-Hart & Hegeman Electric Co. D5200
ubbell, Harvey, Inc. D5202
See also pages. D5150; D5154; D5228; D532
Diamond H D516
Specifications D5194
Wiring Devices, Radio
See Radio Wiring Devices
Wood
Blocks, Flooring and Paving
See Blocks, Wood—Flooring and Paving
Cabinet Work
See Cabinet Work
Carving
Klise Mfg. Co. B2652
See also page B2648
Door Frames
See Trim, Wood
Dyes
See Stains, Wood
Finishes
See Varnish; Enamel; Paint, Stains; Lacquers, etc.
Lath
Arkan Soft Pine Bureau B2530
.... B2540
.... B2530
ion

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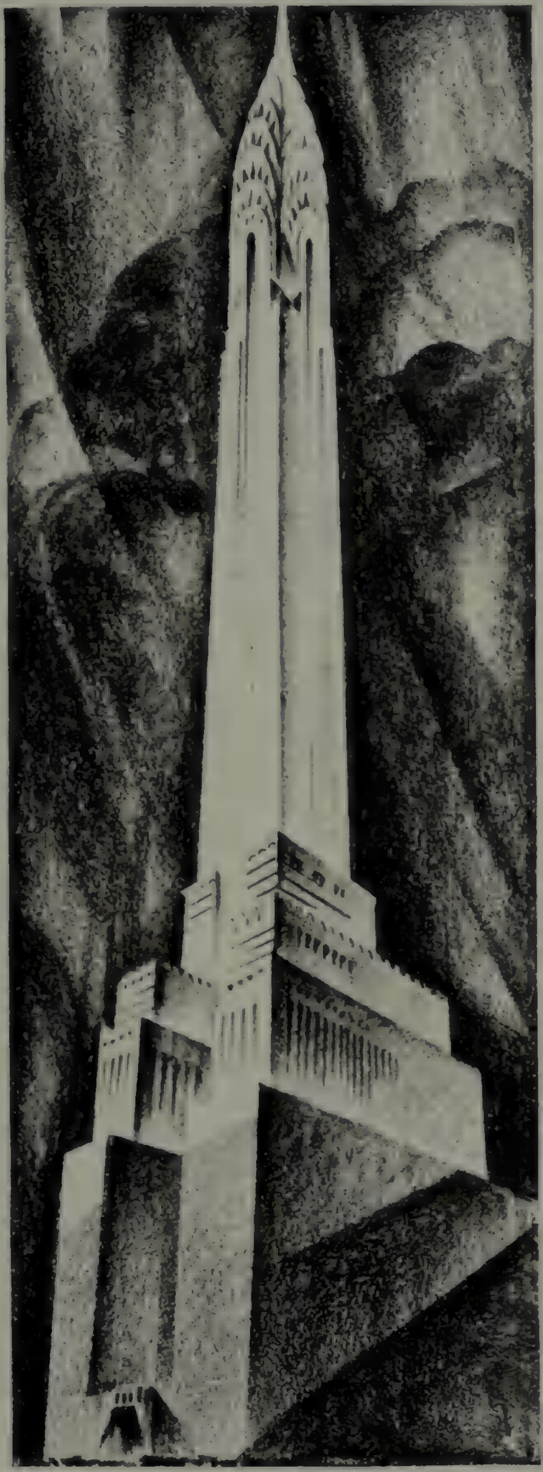

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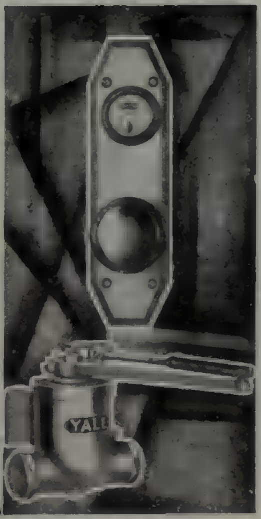

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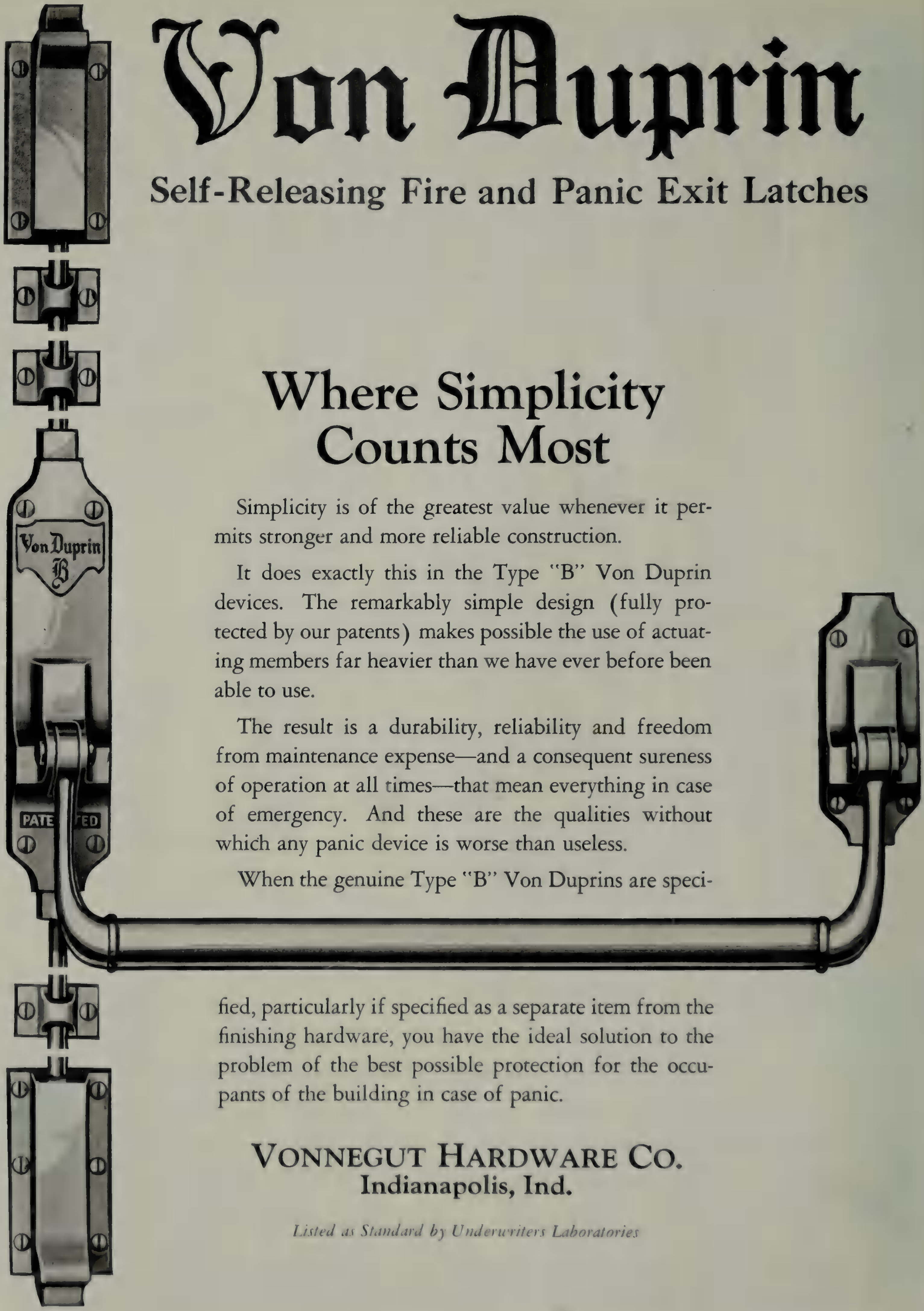

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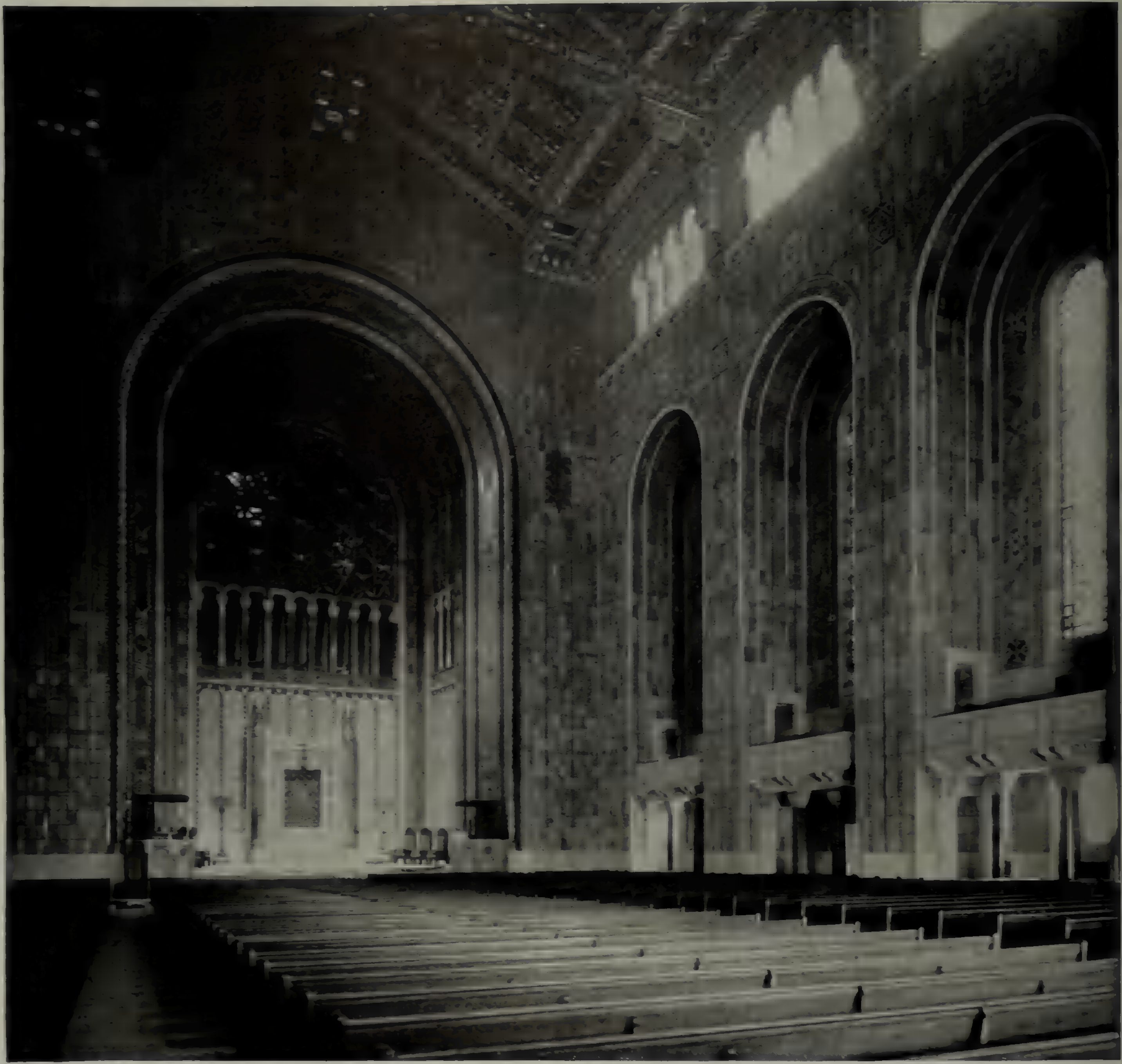

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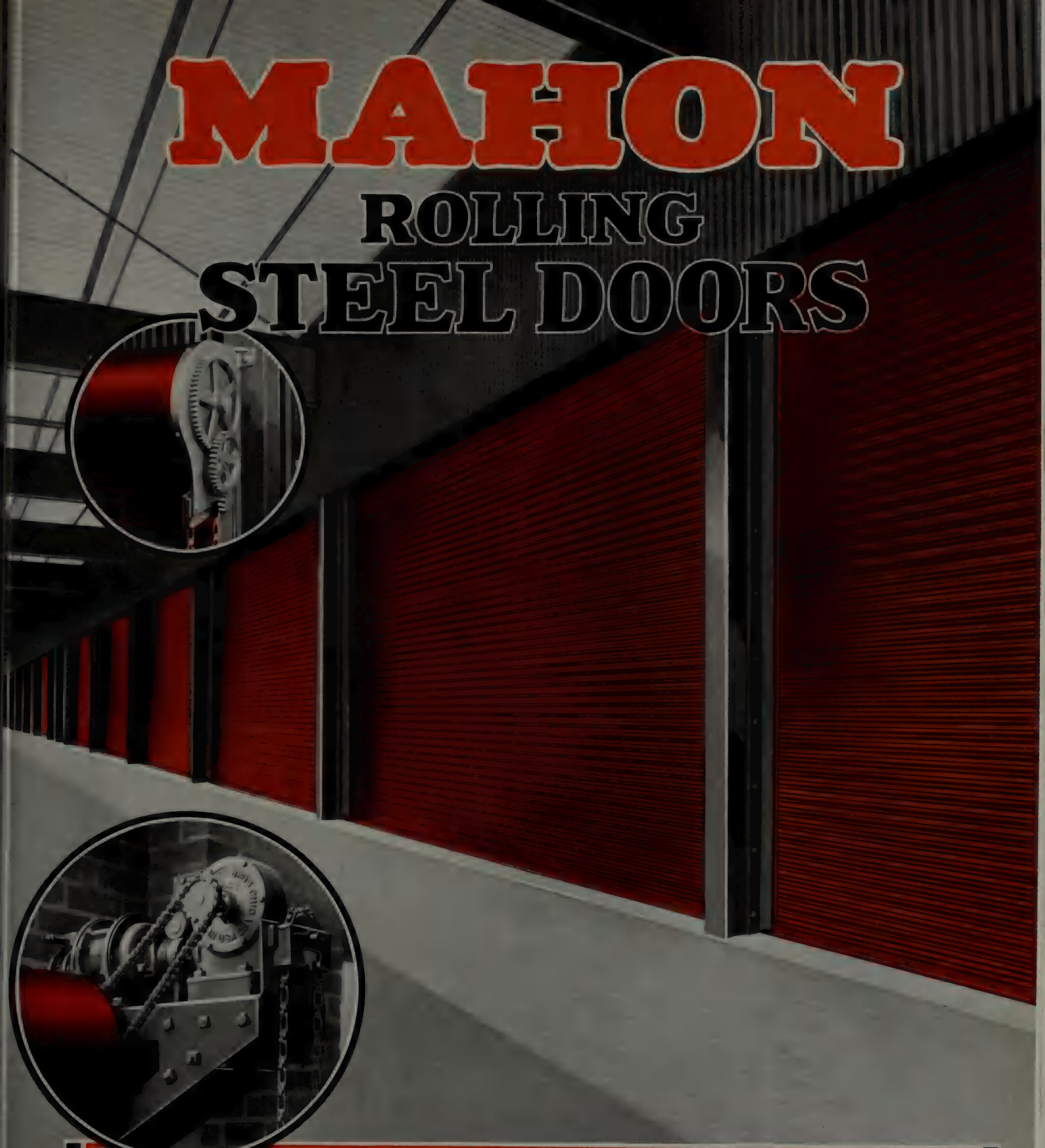

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✱ YOURS FOR THE ASKING

COMPLETE INFORMATION, SHOWING HOW THE

LEWIS AIR CONDITIONER

1—Controls Humidity
2—Recirculates the Air
3—Washes the Air
4—Provides Radiation

ALL AUTOMATICALLY

Steam, vapor, pressure, vacuum, hot water or hot air—it's not the *type* of heating system that causes dry air conditions—lack of humidity. It is the constant *air change* taking place in the home due to infiltration of outside air through walls, around windows and doors.

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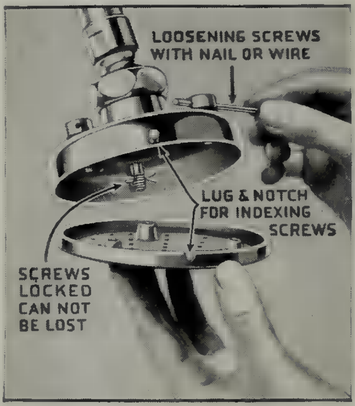
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SCREWS LOCKED CAN NOT BE LOST

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Face of shower head completely removed by simply loosening three screws. After cleaning, face is replaced—a set of notches guiding for correct placement and alignment as when originally assembled.

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Patented mixer control, for shower or tub, provides a predetermined maximum hot water temperature. This prevents scalding, and also the waste of water as in ordinarily obtaining the correct water temperature. Also, one valve operates the mixer instead of two, as ordinarily used. Write now for details: acquaint yourself with this new bath advancement, for your own information and the benefit of your clients.

Write for Complete Details Now

Write now for complete details regarding Niedecken Shower and Tub Fixtures and Niedecken Features of unequaled advantages. Have Niedecken in your files—and Niedecken in your mind for the most advanced bath equipment improvements.

HOFFMANN & BILLINGS
. . . . MFG. CO.
MILWAUKEE
WISCONSIN

New England Telephone & Telegraph Company Building, Worcester, Mass.

Architects: Densmore, Le Clear & Robbins, Boston.

Alundum Terrazzo and Precast Alundum Aggregate Treads and Platforms by De Paoli Mosaic Co., Boston, Norton Licensee.

Where Beauty and Utility Meet

THIS new business building and exchange of the New England Telephone & Telegraph Company is an excellent example of the use of modern floor materials to provide maximum safety and durability combined with appearance of the highest order.

In the monolithic terrazzo of the main floor and elevator halls and in the precast treads from basement to top floor Alundum Aggregate is assuring permanently non-slip and wear-resisting walking surfaces.

NORTON COMPANY, WORCESTER, MASS.

New York Chicago Detroit Philadelphia
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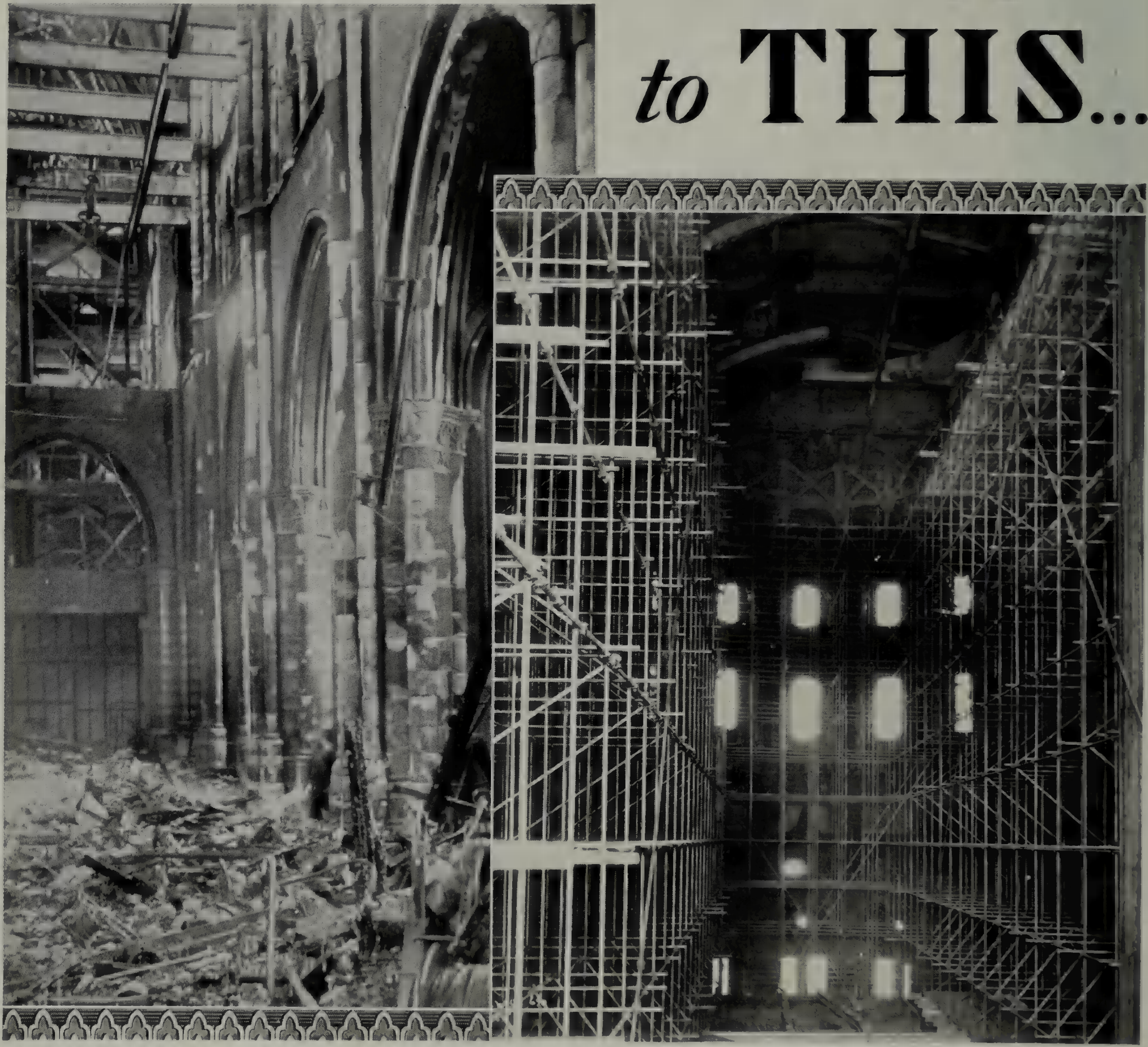
FLOORS
Alundum Tiles, Treads & Aggregates

NORTON

T-254

THIS *could never happen* to THIS...



IN a $5,000,000 church nearing completion, scaffolded entirely in wood, fire caused the tremendous damage illustrated above. It is more than a mere contrast of pictures to show an equally large interior scaffolded with "Tubelox", fireproof, easily erected and readily adapted to the most complex interiors and exteriors. Specifying this equipment is not only good practice, but logical protection of the client's interests.

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PATENT TUBULAR STEEL SCAFFOLDING

"Specify Tubelox"

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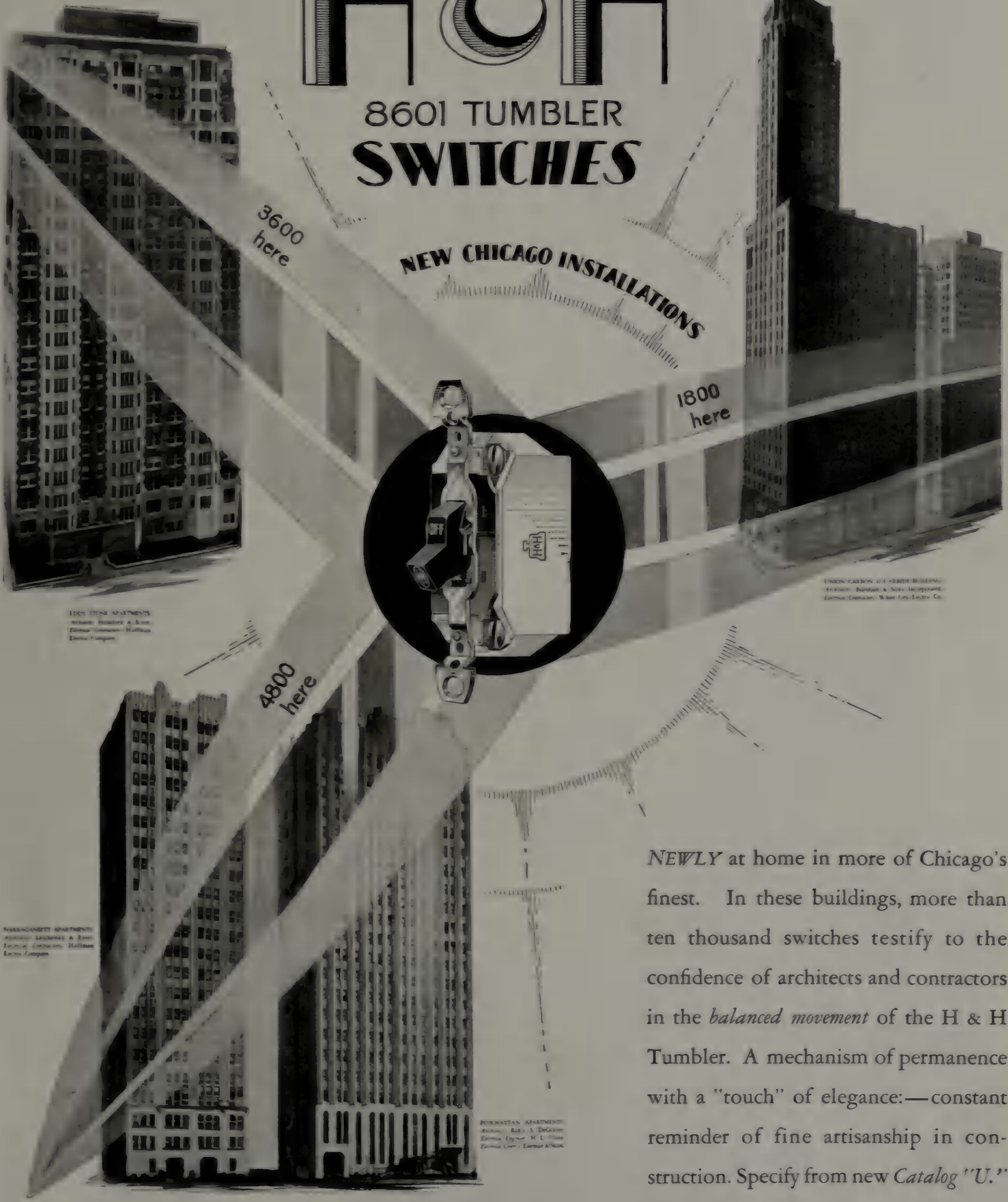
8601 TUMBLER SWITCHES

NEW CHICAGO INSTALLATIONS



EDGE STONE APARTMENTS
[illegible]

UNION CARBON & CARBIDE BUILDING
Architect: Burnham & Sons Incorporated
Electrical Contractor: White City Electric Co.

NARRAGANSETT APARTMENTS
Architect: Leichenko & Esser
Electrical Contractor: Hoffman Electric Company

POWHATAN APARTMENTS
Architect: Robt. S. DeGolyer
Electrical Engineer: H. L. [illegible]
Electrical Contr.: [illegible]

NEWLY at home in more of Chicago's finest. In these buildings, more than ten thousand switches testify to the confidence of architects and contractors in the *balanced movement* of the H & H Tumbler. A mechanism of permanence with a "touch" of elegance:—constant reminder of fine artisanship in construction. Specify from new *Catalog "U."*

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THE ARROW-HART & HEGEMAN ELECTRIC CO.
HARTFORD, CONN. MAKERS OF ELECTRIC SWITCHES SINCE 1890

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Architeects—
BARK & DJORUP
Heating Contractor—
E. G. WOOLFOLK CO.

Performance
that justifies repeat specifications —

THE PERFORMANCE of Youngstown steel pipe in thousands of installations from coast to coast has more than justified its being written into architects' specifications. In plumbing, heating, sprinkler and refrigeration systems this rugged steel pipe has consistently demonstrated its ability to deliver satisfactory service under all conditions—in all types of buildings.

Written into the specifications of any building, Youngstown pipe is sound insurance of pipe permanence—a fact which has been proved beyond question by the performance facts. Unquestionably, it pays to specify Youngstown steel pipe—and it costs your clients no more.

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MEMPHIS—P. O. Box 462
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NEW ORLEANS—Hibernia Bldg.
NEW YORK—30 Church St.
PHILADELPHIA—Franklin Trust Bldg.
PITTSBURGH—Oliver Bldg.
SAN FRANCISCO—55 New Montgomery St.
SEATTLE—Central Bldg.
ST. LOUIS—Shell Bldg., 13th and Locust Sts.
YOUNGSTOWN—Stambaugh Bldg.

LONDON REPRESENTATIVE—The Youngstown Steel Products Co., Dashwood House, Old Broad St. London, E. C. England

WESTINGHOUSE Elevators are an integral part of this striking new building —efficient in speed, safety and control. The operation, unusually smooth and quiet, insures perfect floor landings of automatic precision.

Any vertical transportation need is readily supplied by the Westinghouse Electric Elevator Company.

Westinghouse Elevators are the logical highways of modern architecture.

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ATHLETIC CLUB
NEW YORK CITY

STARRETT-VAN VLECK
Architects

THOMPSON-STARRETT CO., INC.
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"STRENGTH" concrete—designed and controlled in exact accordance with the modern cement-water ratio, is the demand of the hour in the construction field.

These modern requirements cannot be efficiently met with obsolete equipment or antiquated methods. Today in every section of the country, Architects, Engineers and progressive Contractors are using

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SYSTEM
MIXED CONCRETE

—the product of Paris TRANSIT Mixers.

Construction programs, great and small, are now being rapidly, efficiently and economically handled by this modern "specification" concrete.

NOW READY—*The New Booklet* CONCRETE FACTS—*Mailed to you on request.*

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What About a Five Hour Day For Executives?

The five day week for labor has become a vital topic in American business affairs. Modern production methods, aided by time-saving devices, have brought this idea from the realm of dreams to that of imminent fact.

Modern executives have learned the wisdom of keeping their production methods up-to-date. But many of them have ignored the possibility of saving their own time in similar ways. Talk to them about reducing their own office hours and immediately you meet with a storm of protest. They complain that they do not get enough done as it is. The day draws to an end, but many vital things are left unfinished.

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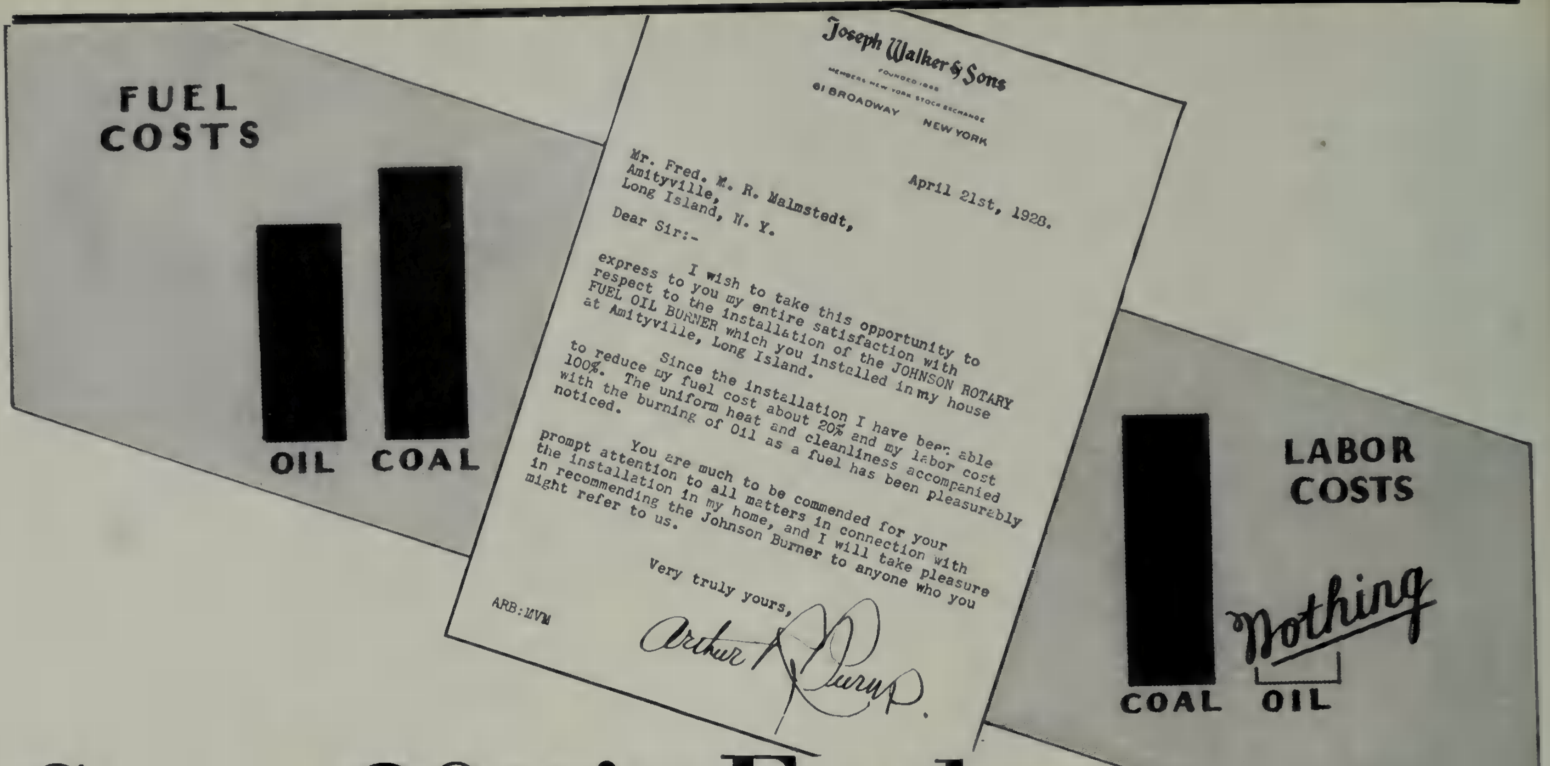

Joseph Walker & Sons
FOUNDED 1855
MEMBERS NEW YORK STOCK EXCHANGE
61 BROADWAY NEW YORK

April 21st, 1928.

Mr. Fred. M. R. Malmstedt,
Amityville,
Long Island, N. Y.

Dear Sir:-

I wish to take this opportunity to express to you my entire satisfaction with respect to the installation of the JOHNSON ROTARY FUEL OIL BURNER which you installed in my house at Amityville, Long Island.

Since the installation I have been able to reduce my fuel cost about 20% and my labor cost 100%. The uniform heat and cleanliness accompanied with the burning of Oil as a fuel has been pleasurably noticed.

You are much to be commended for your prompt attention to all matters in connection with the installation in my home, and I will take pleasure in recommending the Johnson Burner to anyone who you might refer to us.

Very truly yours,

Arthur R. Durup.

ARB:MVM

Saves 20% in Fuel... 100% in Labor

THIS saving, plus uniform heat and cleanliness, is typical of the dependable, carefree performance of Johnson Oil Burners the world over.

Wherever you may go... from California to Maine, and in foreign lands... you will find that home owners, builders and operators of large buildings, factories and industrial plants are praising the economical and dependable performance of Johnson Oil Burners for every heating and power purpose.*

You can safely recommend and use Johnson Oil Burners with absolute confidence that they will give enduring satisfaction. The experience of more than twenty-five successful years as manufacturers of oil burning equipment is behind every Johnson product.

The accumulated data of our twenty-five years' experience is available to you. Our Engineering Service Department will welcome the pleasure of assisting you in the solution of your heating or power problems.

We will also be pleased to send a copy of our catalogue, as published in "Sweet's," for your files. Just write "*Bulletin 4-B, please,*" on your letterhead or business card, no obligation incurred, and your copy will be sent without delay.

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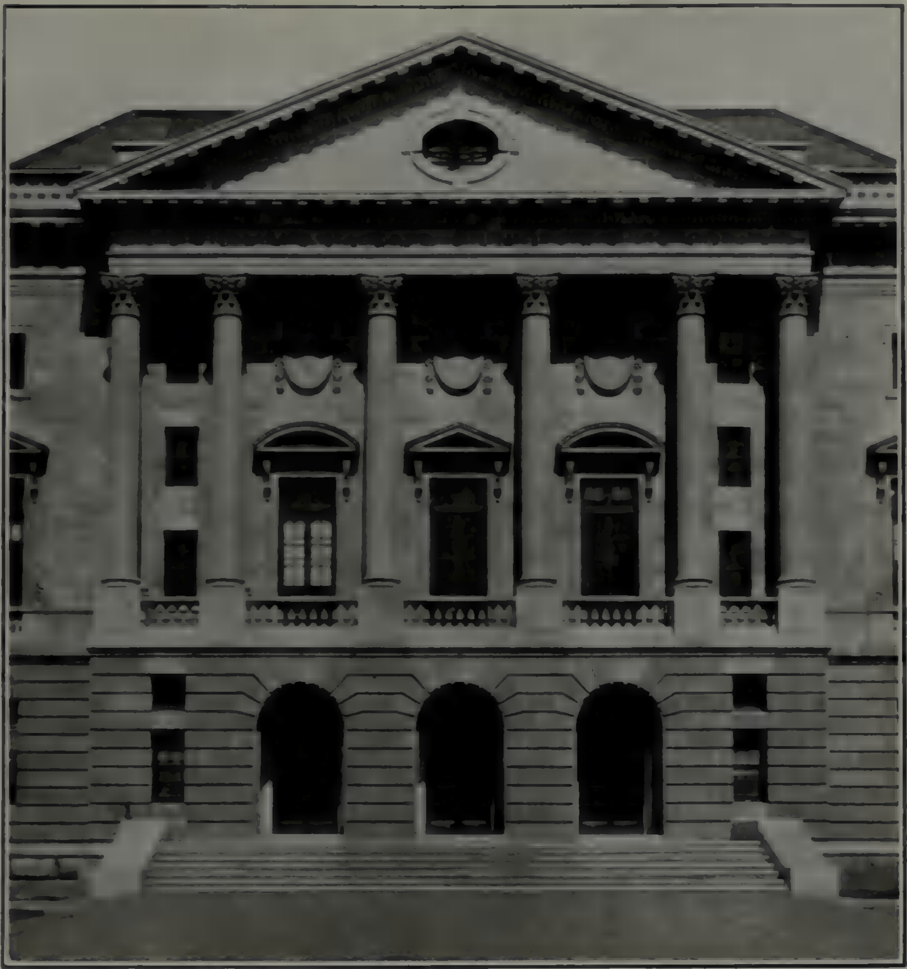

Main entrance detail of the William S. Hackett Junior High School Building, Albany, N. Y. Marcus T. Reynolds, Architect, Albany. The entire exterior of this modern structure, built in 1926, is faced and decorated with cast stone of pleasing buff tints

CAST STONE IN SCHOOL BUILDINGS

School and college buildings are undeniably improving in appearance. Beauty and dignity, as well as utility, are much more in evidence than heretofore. Cast stone is playing an important part in this development, because it affords the architect the utmost latitude in expressing his ideas. It offers a wide range of color and decorative possibilities. This, combined with its structural adaptability, gives cast stone a high degree of usefulness. When it conforms with the specifications recommended by this Institute, its durability is assured. ¶ Illustrated booklet sent on request.

Cast stone is a building stone molded from concrete in which the aggregate is especially prepared and selected for durability and appearance. The surface is cut or otherwise treated to produce any desired finish.

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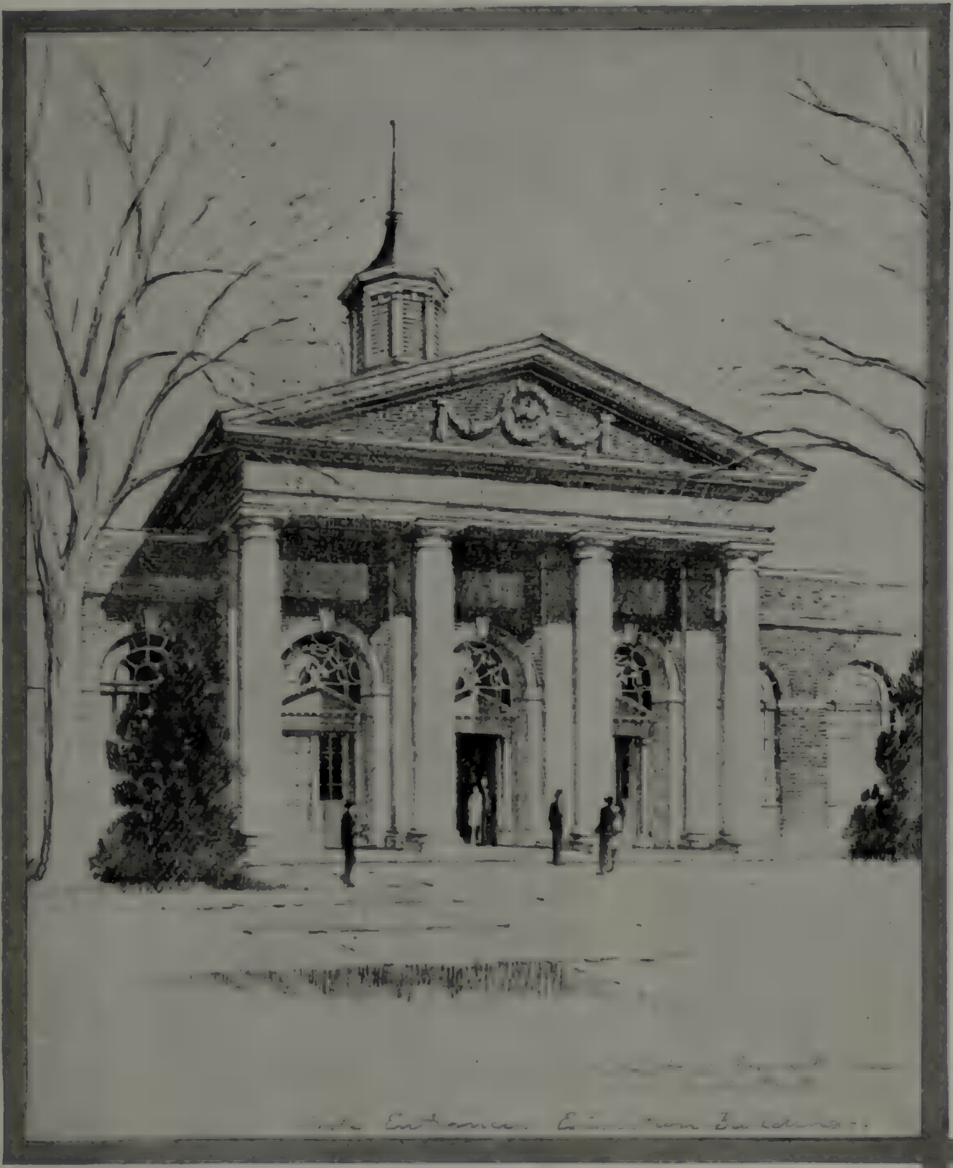

The
Henry Ford Museum

Dearborn, Michigan

ROBERT O. DERRICK, Inc., *Architects*

The Henry Ford Museum is to contain a most complete exhibit of American progress,—therefore the group of buildings housing this collection is an architectural expression of National character and tradition, following closely the Independence Square Group at Philadelphia.

The museum group (see below) consists first of five administration buildings, which, connected by arcades form an interesting facade; back of this is a secondary group,—auditorium, school, five arcades, and the main exhibition building which is a single room 800′ x 450′.

The exterior features are the ten large entrances, four of which are especially impressive, being flanked with monolithic Doric columns of Grey Georgia Marble. These buildings are constructed of steel and concrete, and all exterior walls, which are of solid masonry, are trimmed for the most part in Grey Georgia Marble.

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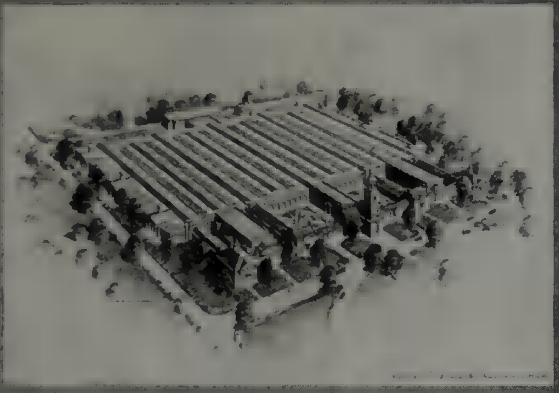
Georgia Marble trim is the perfect choice for this building development . . . *First,* the marble itself is structurally and architecturally right . . . *Second,* with our eight quarries and three finishing plants operating 12 months in the year, we planned and carried through a delivery schedule on finished marble that earned the appreciation of the architects and general contractors.



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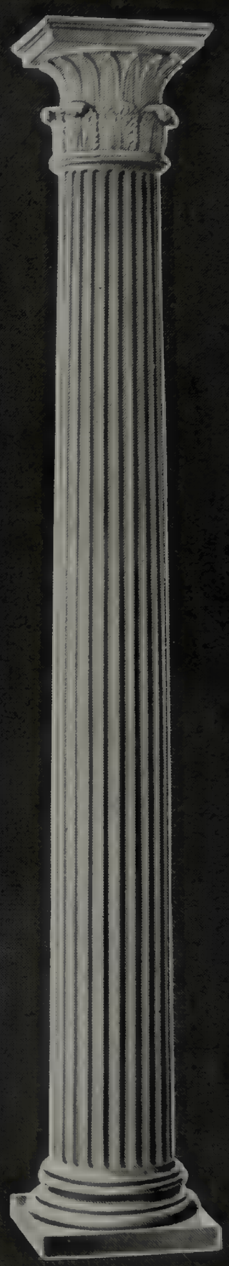

COLUMNS, one of architecture's oldest forms, continue to be one of the most popular. Under the guiding hand of a skillful architect they may be incorporated in entrances and porches with a charm that is as new as today.

But, of course, there are columns and columns.

Union Metal Pressed Steel Columns are authentically designed and proportioned, according to the classical orders. They are made in sizes suitable for large public buildings or small homes.

Moreover, the galvanized copper-bearing steel from which these columns are fabricated does away with cracking, rotting, warping and splitting troubles. Once installed they are good for a lifetime of service. Truly, here is the ideal column for all classes of work.

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Representatives throughout the United States

Union Metal Column No. 213—Temple of the Winds Design

Apartment for Doctors, Security Benefit Association, Topeka, Kansas. Architect, W. E. Glover; Contractors, Sanneman Construction Company.

and in the South...

AT Birmingham, Alabama, is the magnificent Jefferson County Court House, pictured below. Holabird and Root were the Architects—Harry B. Wheelock, Associate Architect. Ingalls Iron Works Company fabricated the steel and Southern Ferro Concrete Company were the General Contractors. Here again Carnegie Beams were chosen to form the steel framework.

The popularity of Carnegie Beams is nation wide. Every important city in the United States—North, East, South and West—is represented in the imposing list of structures in which these modern sections have been used. Architects and steel designers have been quick to recognize the remarkable adaptability of Carnegie Beams to their needs—to see the unlimited possibilities in design and construction these wide, parallel-flanged sections present.

In any type of construction involving structural steel, Carnegie Beams offer economy, utility and flexibility of design never before possible.

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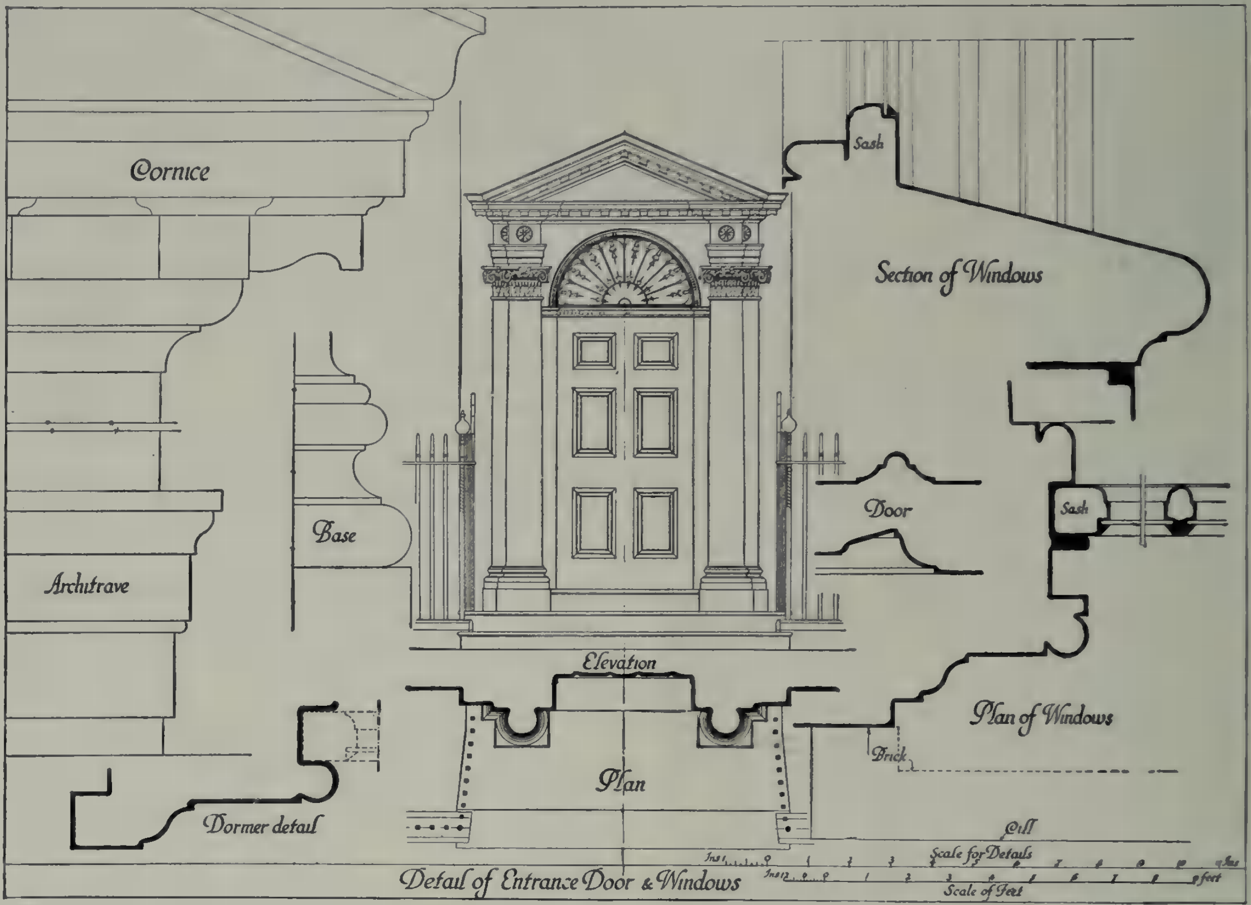

Shuts Out Paint's Worst Enemy—Moisture

Moisture penetration in wood has been a constant source of annoyance and worry for architects. It causes paint to fail and wood to warp out of shape, destroying the symmetry of well-planned architectural detail.

Aluminum paint offers a solution to this trouble. When wood is primed, both back and front, with this metallic paint, moisture is shut out. The pigment of aluminum paint is made up of minute flakes of pure Alcoa Aluminum. As this paint is applied, the flakes "leaf". They pile up, one on another, to make a continuous moisture-resisting coat of metal protection. Then too, an aluminum painted surface provides a "tooth", which securely anchors top coats. This is another reason why aluminum paint as a primer assures a finished job of lasting beauty.

For all wood surfaces, be sure to specify aluminum paint made with Alcoa Albron Powder mixed with a suitable vehicle, as prepared by reputable paint manufacturers. Aluminum paint made with Alcoa Albron Powder costs no more than other kinds of good paint.

The booklets, "Aluminum Paint, the Coat of Metal Protection", and "Specifications for Aluminum Paint" contain much information of value to architects. May we send you free copies? ALUMINUM COMPANY of AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA.

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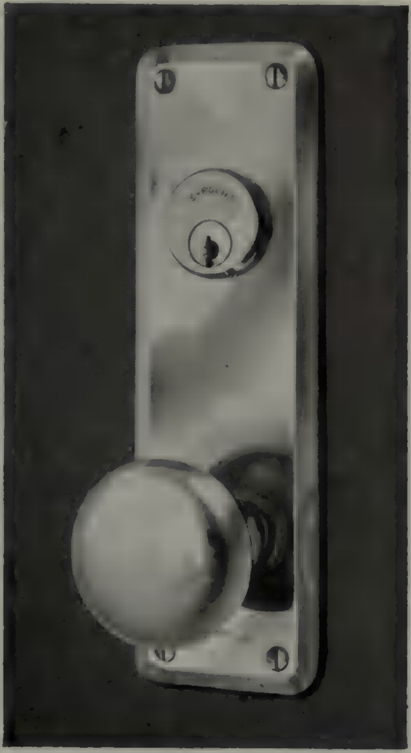

The Passavant Hospital, Chicago; Holabird & Root, architects; equipped throughout with Sargent Hardware. The appropriateness and simplicity of the design in chromium plate may be judged from the one item shown above.

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THE BEST possible service to suffering humanity—this is the aim of the modern hospital. Its cost is unrestricted by expected profit on the investment. Each step of planning, building, equipping demands the highest skill available. Every installation must be of the finest. Where such excellence is imperative Sargent Hardware is a natural selection. For many years Sargent Hardware has been installed in outstanding structures of the country—hospitals, office buildings, educational buildings, hotels, apartments. Appropriate designs of Sargent Hardware add materially to the beauty and service of each. Perfect operation is assured for every moving part. Sargent & Company, New Haven, Connecticut; 94 Centre Street, New York; 150 North Wacker Drive (at Randolph), Chicago, Illinois.

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THE time is now. The place is any place at all where a wasted footstep has stolen away its bit of somebody's valuable energy . . . There are many, many such footsteps . . . Everlasting footsteps—footsteps—footsteps, walking away patience; stealing precious minutes—here—there—everywhere... And all for little matters of routine; for a moment's conference, to deliver a message, to get a report . . . How much easier—how much quicker—to press a button at one's desk, and let the Inter-Phone do the rest! . . . Footsteps add up. In large institutions their sum total can be enormous . . . . The Inter-Phone is trapping these footsteps, wholesale—and reclaiming all the lost minutes they imply. It is freeing people's energies. It is doing away with fatigue, that arch-enemy of real efficiency.

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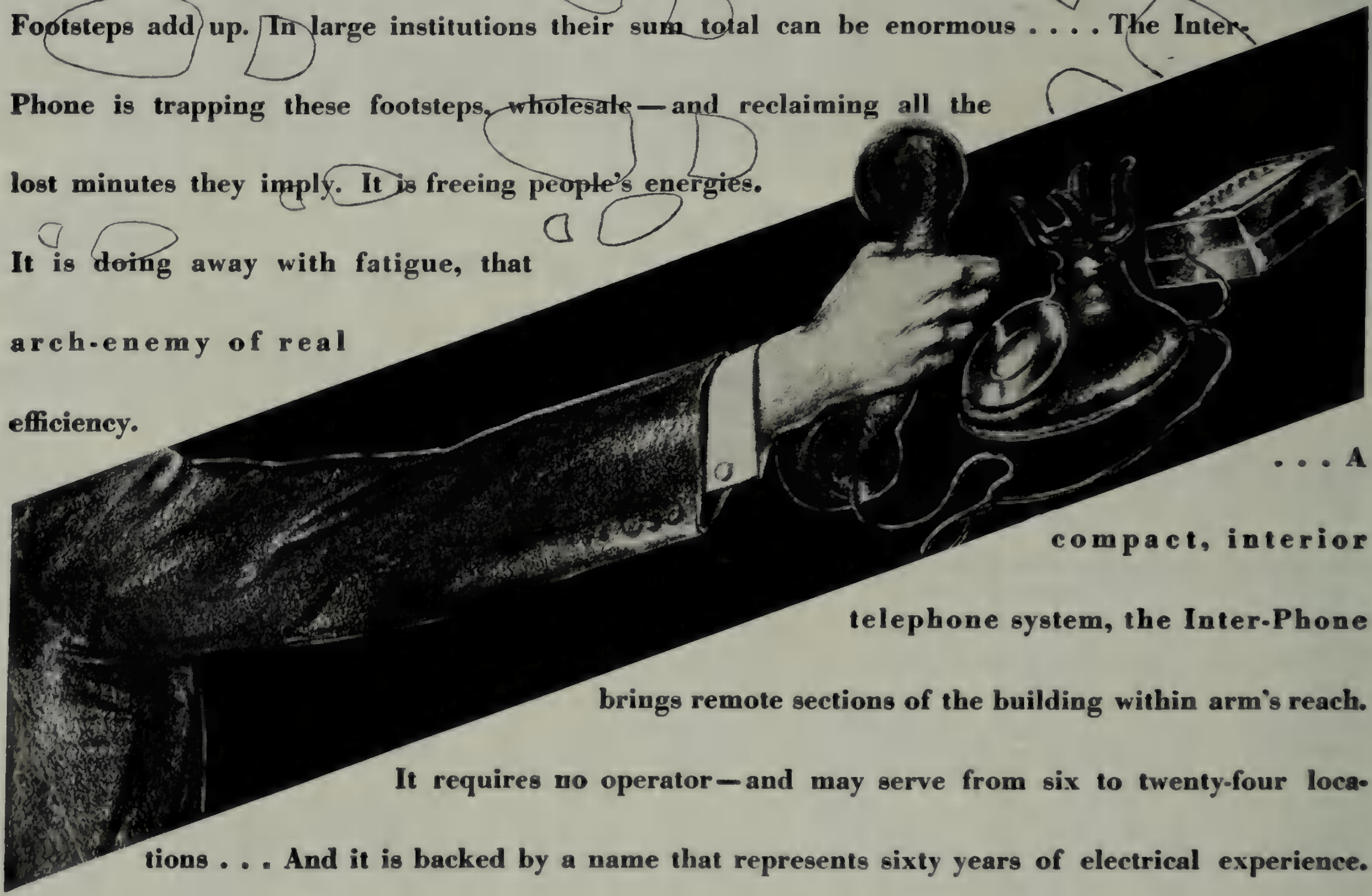

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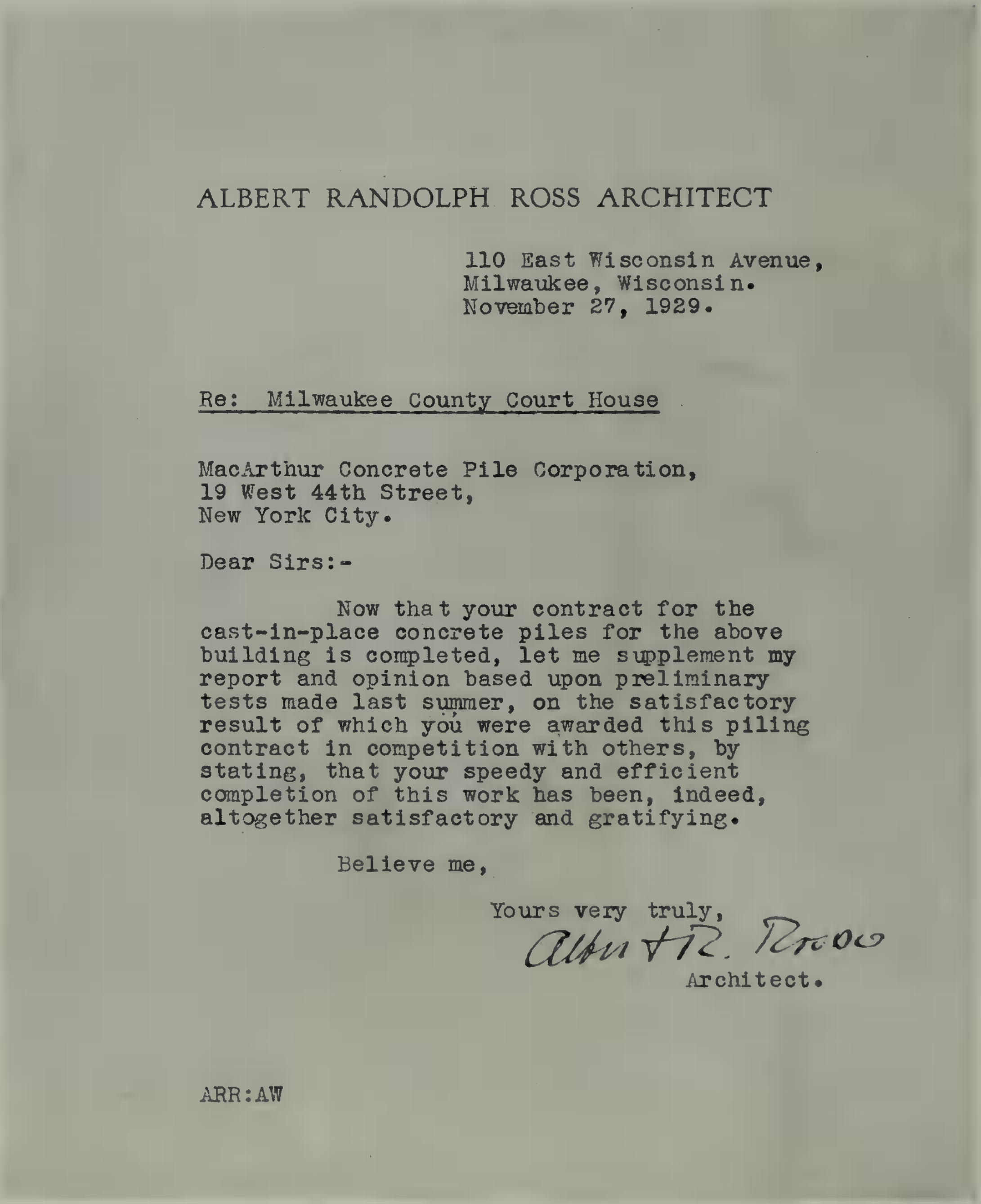
Albert Randolph Ross, Architect, tells about MacArthur performance on the contract that saved $73,000 for Milwaukee County on its new Court House



ALBERT RANDOLPH ROSS ARCHITECT

110 East Wisconsin Avenue,
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November 27, 1929.

Re: Milwaukee County Court House

MacArthur Concrete Pile Corporation,
19 West 44th Street,
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Dear Sirs:-

Now that your contract for the cast-in-place concrete piles for the above building is completed, let me supplement my report and opinion based upon preliminary tests made last summer, on the satisfactory result of which you were awarded this piling contract in competition with others, by stating, that your speedy and efficient completion of this work has been, indeed, altogether satisfactory and gratifying.

Believe me,

Yours very truly,
Albert R. Ross
Architect.

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TONCAN Copper Mo-lyb-den-um Iron resists rust and corrosion as no other moderately priced ferrous metal can. The architect who specifies Toncan is building for *permanence.*

And Toncan is a real economy, too. For in those hidden places where rust and corrosion send maintenance costs soaring, Toncan wages its gallant, winning battle against the forces of Nature.

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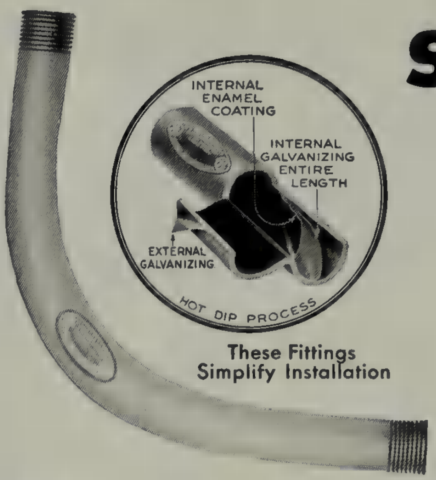

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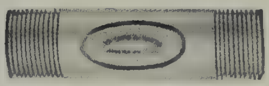

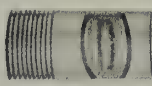

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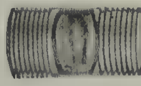

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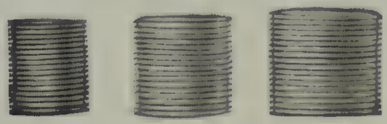

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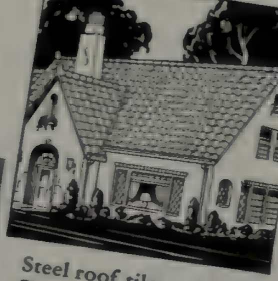

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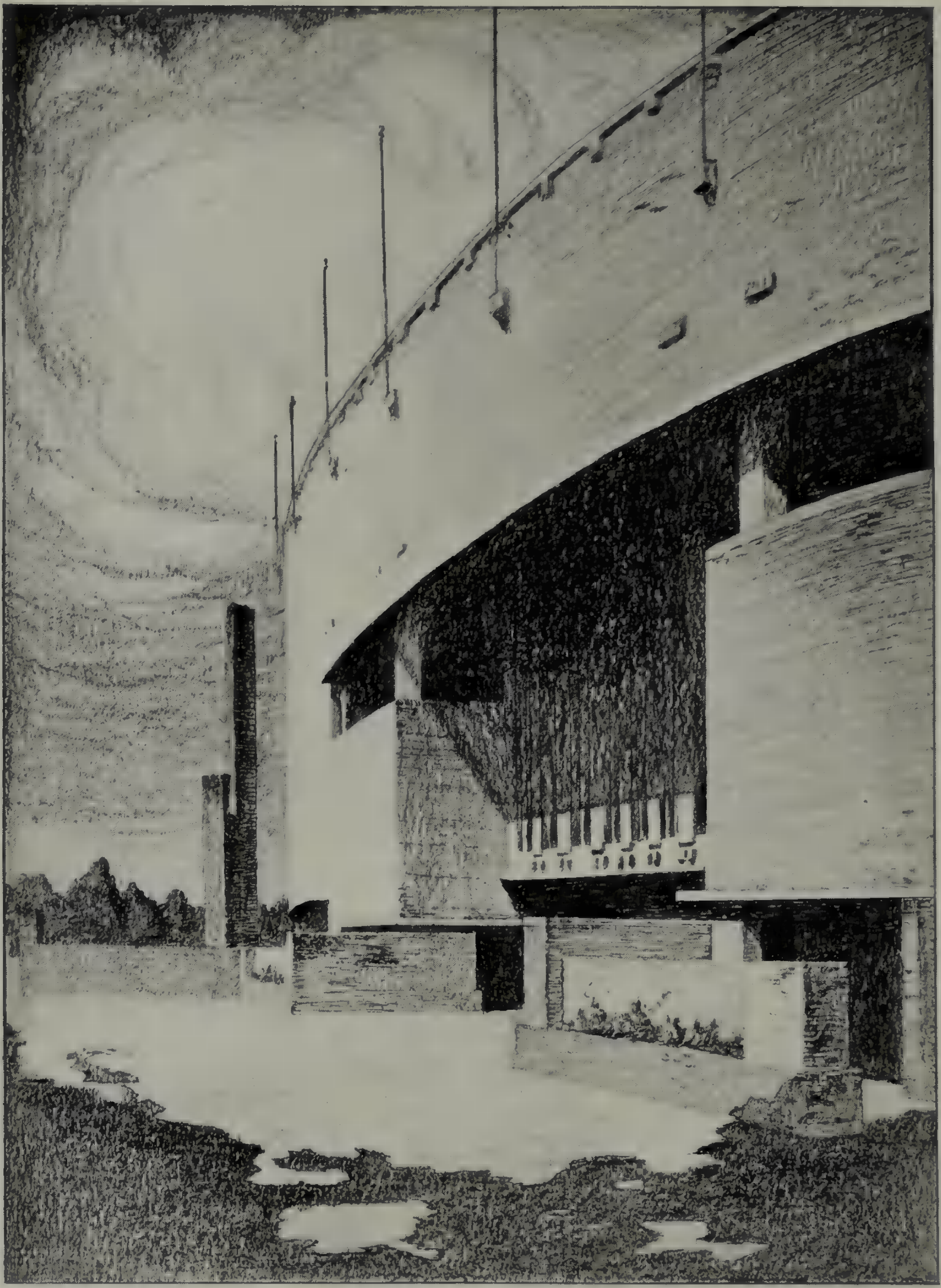

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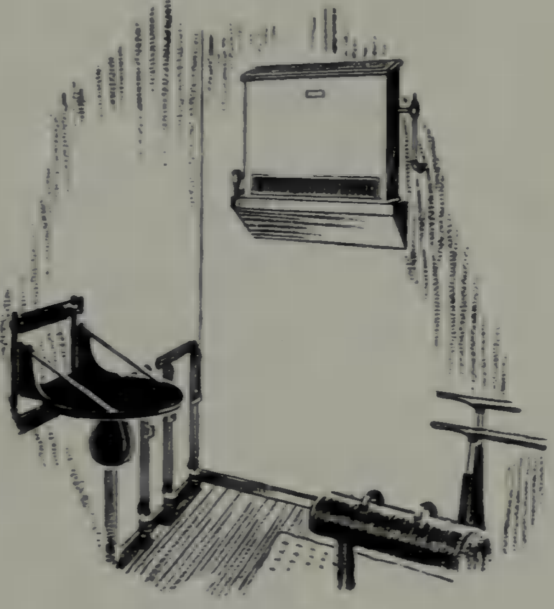

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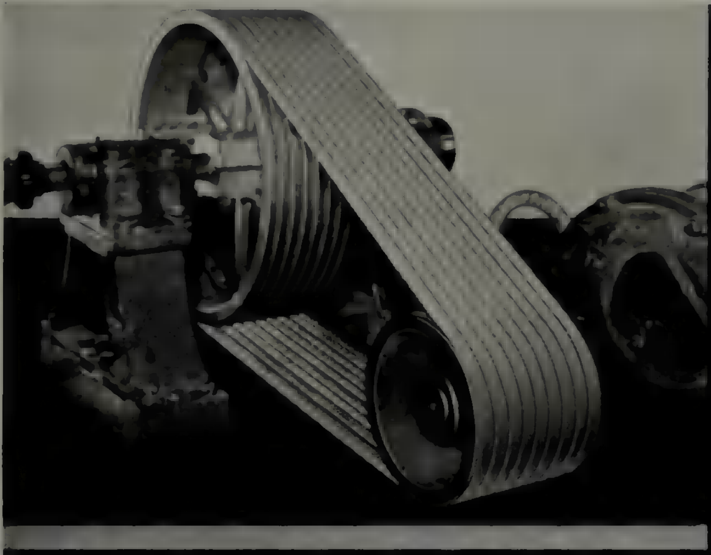

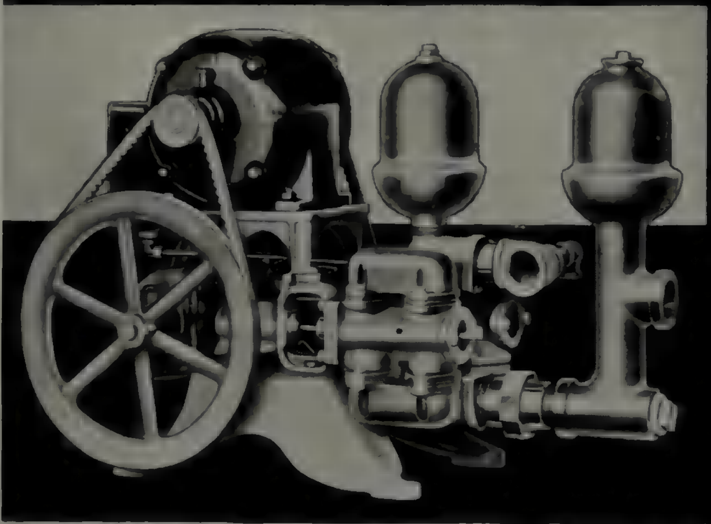

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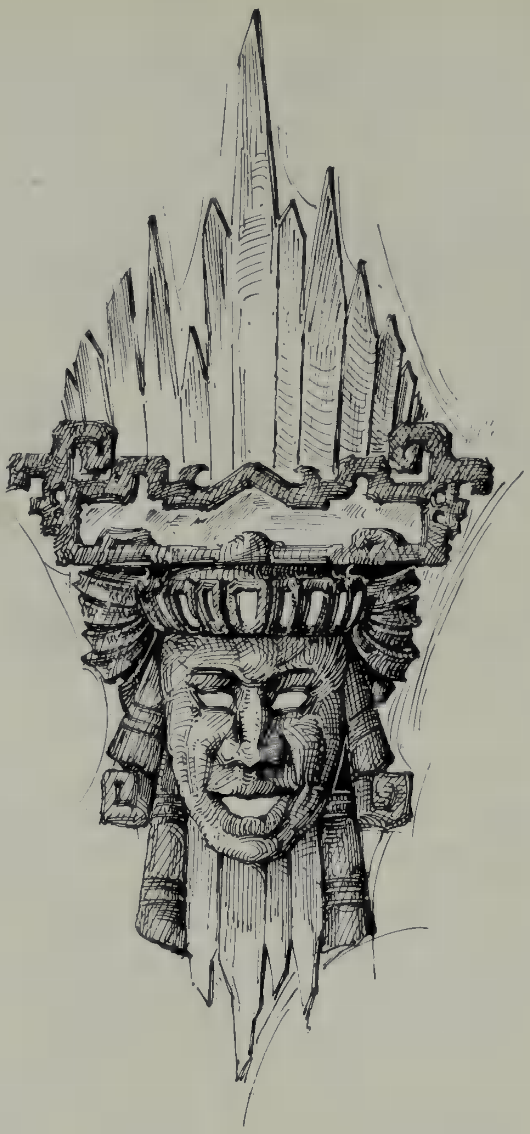

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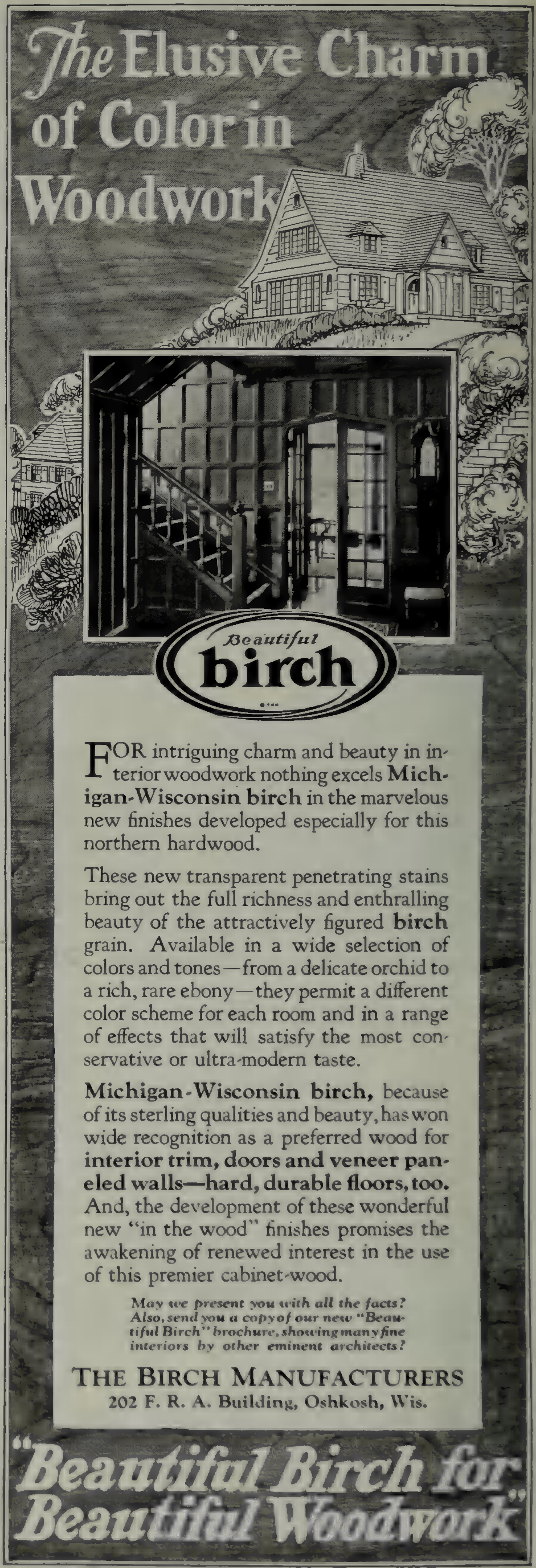

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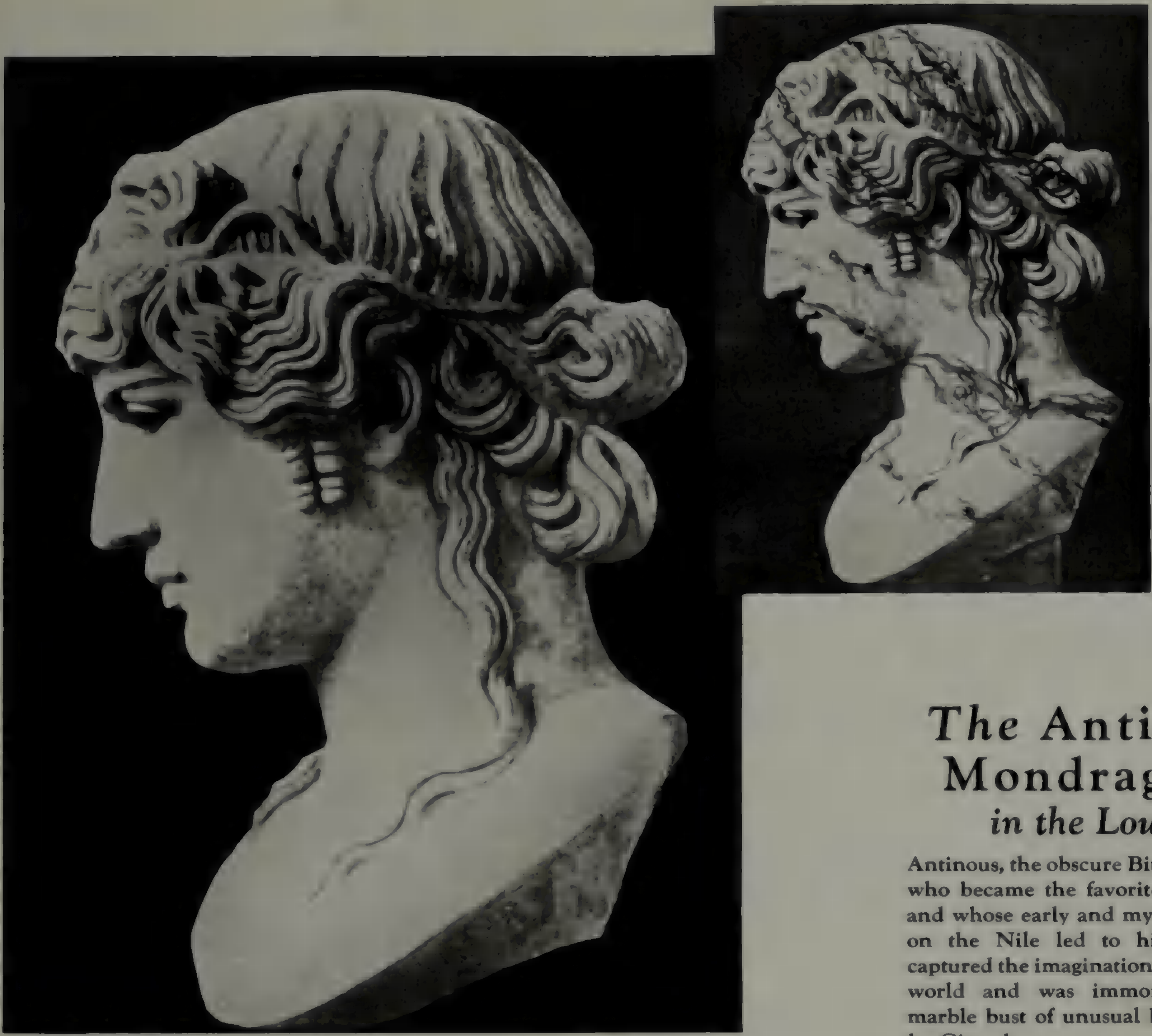

The Antinous Mondragone
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Antinous, the obscure Bithynian youth who became the favorite of Hadrian, and whose early and mysterious death on the Nile led to his deification, captured the imagination of the Roman world and was immortalized in a marble bust of unusual beauty. Photo by Giraudon.

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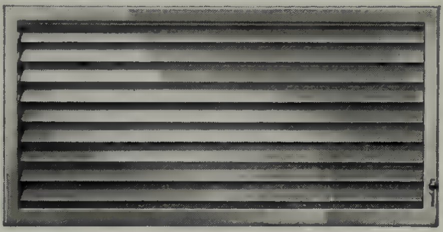

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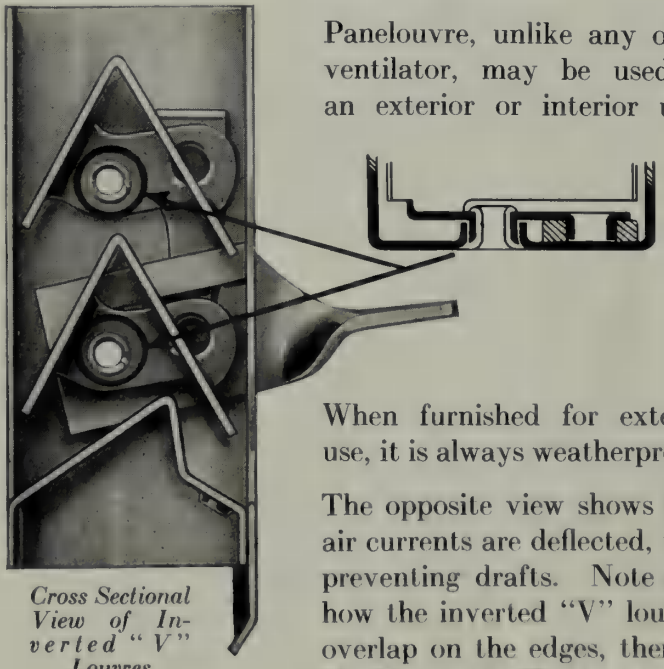

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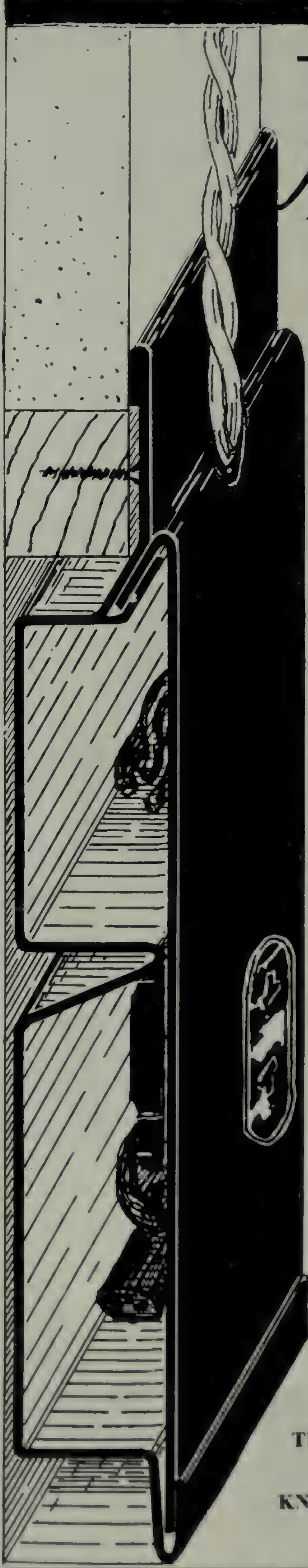

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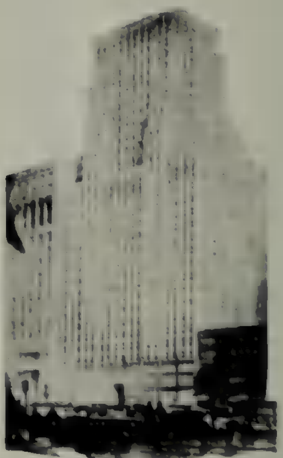

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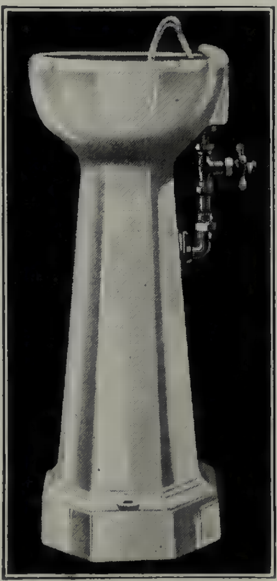
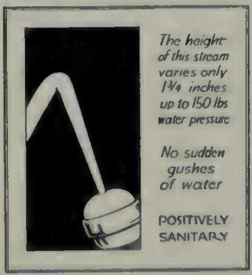
This is the NEW Unique Development in Automatic DRINKING FOUNTAINS



Here is an invention that is changing all previous ideas of automatic drinking fountains. Utterly new in principle, it conquers completely fluctuating water pressure and assures at all times a sanitary, perfect drinking stream.

The new Century Bubbler is permanently automatic. The drinking stream remains practically constant whether the water pressure on the line be 5 lbs. or 150 lbs. Sudden splashing gushes of water have been definitely eliminated. Mere trickles of water are unknown. Century Fountains perform with the same definite accuracy on the first floor as on the thirty-first floor; in line or individually. This unusual degree of efficiency heretofore unknown is accomplished without wasting a single drop of water.

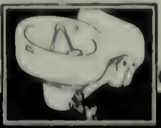
Get All The Facts


The height of this stream varies only 1¾ inches up to 150 lbs water pressure
No sudden gushes of water
POSITIVELY SANITARY

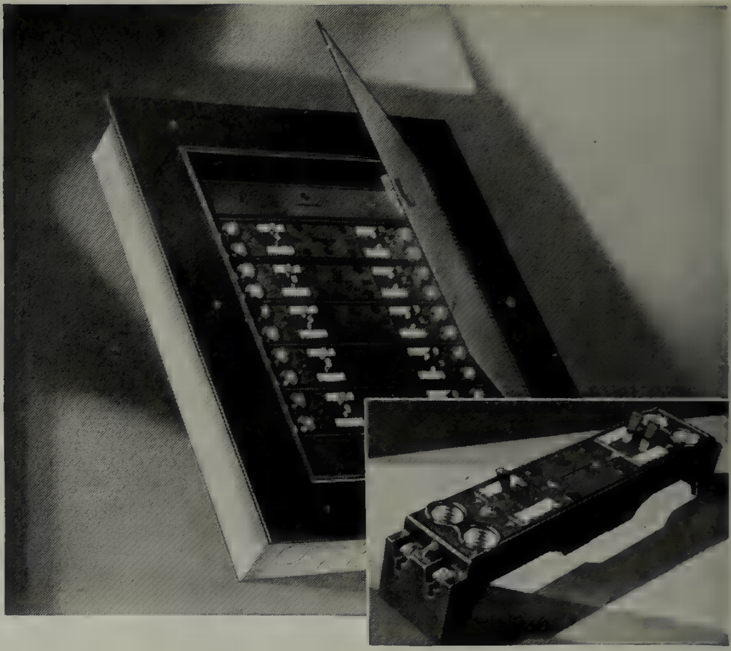
See the new attractive models. There is an exact fountain for every need. Get the complete story of the new Century development. Learn why Century Fountains are practically permanently free from maintenance costs and actually save hundreds of dollars in water costs. The full story is contained in the new Century Catalog. Write for it today.

CENTURY BRASS WORKS, Inc.

902 N. Illinois St. Belleville, Illinois



Century SANITARY DRINKING Fountains



There's no profit in useless maintenance

After a panelboard is installed and working properly, every one wants to and should forget it.

This can be done with ⒻⒶ Panelboards. Original cost, which is no higher than other makes, can be divided by the years of a lifetime of service without maintenance if your choice is ⒻⒶ. They are permanently safe, entirely standardized and practically wear proof.

FA Panelboards are the Sign of a Better Job

Reputation is contagious—use ⒻⒶ Panelboards for a better job and as a sign of quality throughout the wiring.

The ⒻⒶ Sales organization is experienced and willing to co-operate on wiring plans and panelboard and switchboard problems. Send for the ⒻⒶ Catalog now, a real handbook, free.

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ELECTRIC COMPANY
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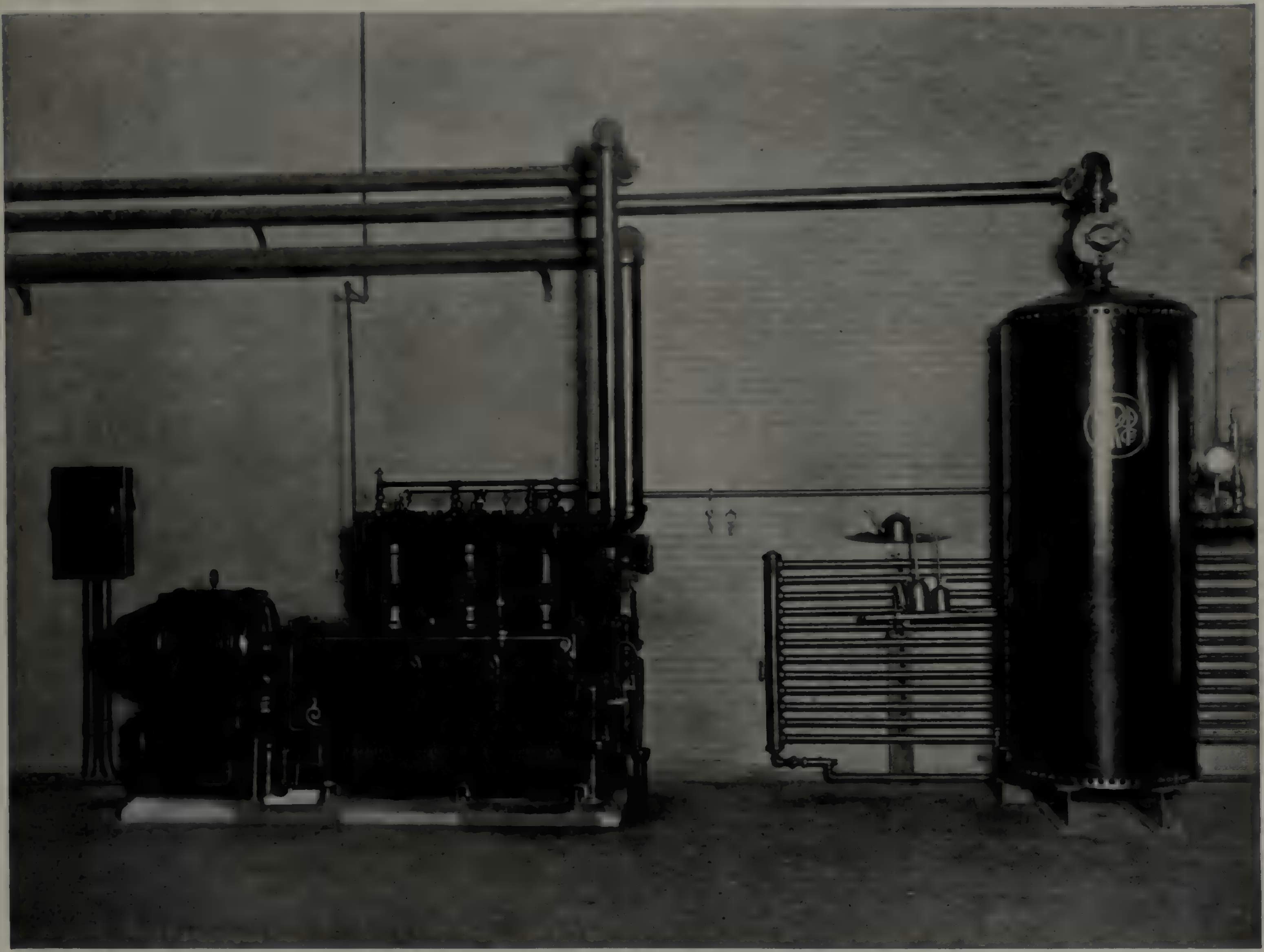
For Efficient, Reliable, Lasting Service ▾ ▾ ▾ ▾

WESTINGHOUSE-NATIONAL Air Compressors, embodying distinctive features developed from three score years of experience, and constructed to manufacturing standards that place ultimate service above the all-too-often consideration of first cost, have won a reputation for high efficiency, dependable action, economical operation, and long life.



We make a complete line of air compressors ranging in size from 3 to 700 cu. ft. displacement—steam driven, motor driven, belt-driven. They are being used for a great variety of purposes in many railroad shops and yards.

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WESTINGHOUSE-NATIONAL
Air Compressors
"Quality Machines for Quality Service"

QUIET

is the word for the modern T/N one piece

HERE'S a real improvement—a smartly designed one piece water closet that fits snugly under a window, under stairs, or in a corner. Tank and bowl combine in one beautiful piece. No ugly wall tank. Just two connections . . . roughing minimum only 12 inches.

Quiet . . . you can scarcely hear T/N's powerful, whirlpool flushing action—a most important item in small homes. T/N's patented ball-cock vent permits no water to feed back into the supply line. The T/N is non-overflowing.

Unusually large and properly located water surface . . . generous sized trapway. T/N is beautiful, practical, strikingly inexpensive. On display at the Architects Building, 101 Park Ave., New York City, or write for complete filing data.

ONE PIECE T/N WATER CLOSET SILENT NON-OVERFLOW

Patented, Pat. Pend.

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Dept. 1403, 220 Delaware Avenue, Buffalo, N. Y.

T/N

ONE PIECE WATER CLOSET

THE NEW RCA CENTRALIZED RADIO

is an essential service feature in modern buildings today

"Soon," prominent architects say, "RCA Centralized Radio equipment will be as necessary as wiring for electric light and power . . . The two principal forms solve the perplexing radio problem in all modern building construction."

All RCA Centralized Radio equipment is standardized and especially designed, as "adapted" material has been found unsatisfactory by RCA engineers. Approved by the National Board of Fire Underwriters, RCA Centralized Radio furnishes *permanently* adequate radio facilities.

Many special features and thorough radio engineering make RCA Centralized Radio installations convenient, simple and very flexible.

Two principal types

RCA Centralized Radio is available in two principal forms:

1. A single antenna connected with a distribution system to radio outlets throughout the building. As many as 80 radio sets of any make can be simultaneously and independently operated from one common antenna, by plugging into wall outlets. Additional central antennae can be installed, as required. This system eliminates an unsightly multiplicity of antennae, and enables the tenant to get far better radio reception.

2. Centralized Radio receiving equipment to distribute broadcast programs to loudspeakers in as many as 5000 rooms throughout a building. Equipment can be installed to make available the choice of programs from as many as four broadcasting stations.

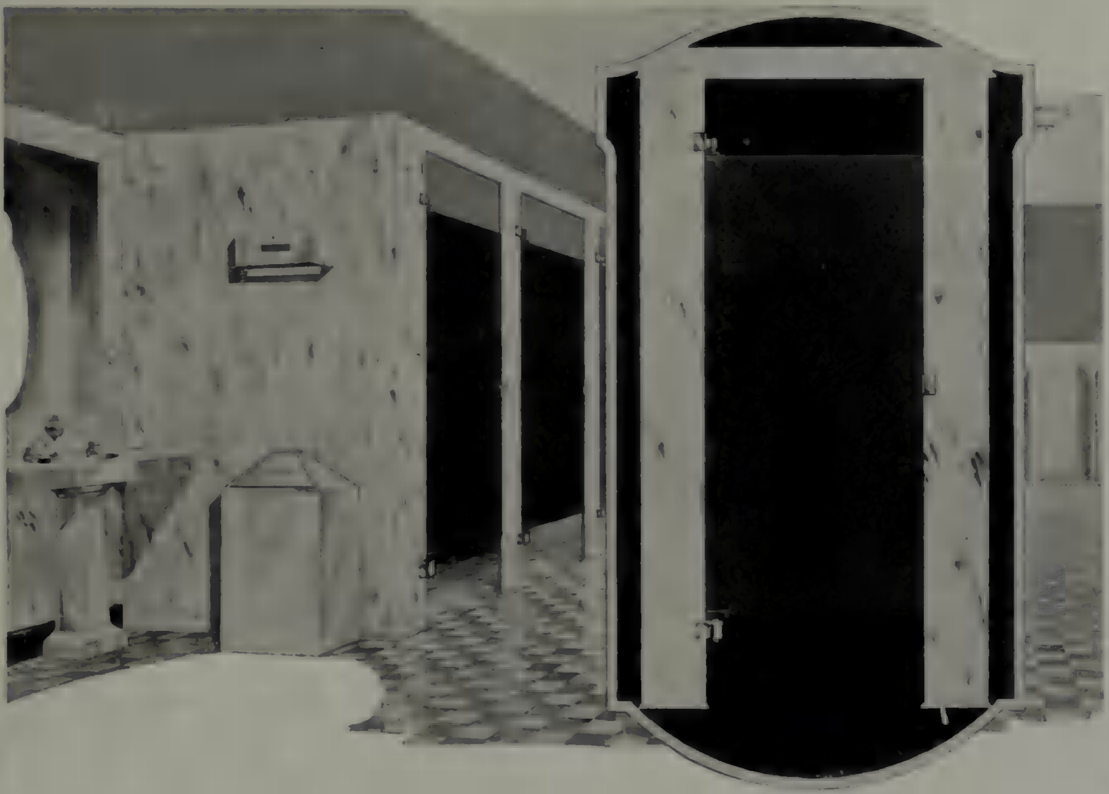
The first method is ideally adapted for apartment houses, dormitories, office buildings, etc., where tenants desire to have their own receiving sets. The second method is particularly designed for hotels, hospitals, sanitariums, schools, passenger ships, etc., where transient occupants of rooms may enjoy radio programs or phonograph record entertainment from a central control.

Let us prepare estimates

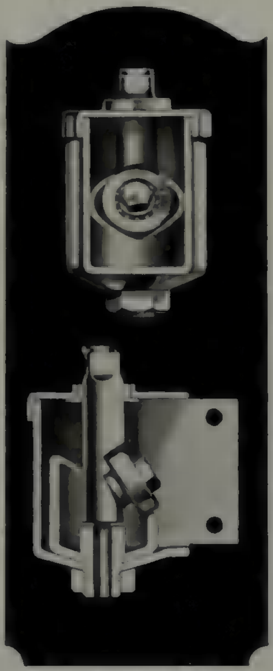
Descriptive pamphlets of these two systems, and of the special apparatus designed for them are available to architects, builders and building owners.

The Engineering Products Division, RCA Victor Company, Inc., at any District Office, named below, will answer inquiries and prepare plans and estimates for installations of any size.

ENGINEERING PRODUCTS DIVISION
RCA VICTOR COMPANY, INC.
261 Fifth Avenue, New York City
100 West Monroe St., Chicago, Ill.
235 Montgomery St., San Francisco, Cal.
Santa Fe Bldg., Dallas, Texas
101 Marietta St., Atlanta, Georgia



saving Time and Trouble



Weis METALUNITS save time in the architect's office because one specification takes care of W. C. stall doors and hardware complete. It is not necessary to check up hardware items individually nor take pains to see that they coincide with each other. They save time on the job because installation requires no fitting and no finishing.

Weis METALUNITS save trouble because doors and and hardware arrive on the job together. There can be no delay waiting for one or the other. The architect can dismiss the matter from his mind and the contractor is not put to the additional trouble of checking items received from different places and at different times.

The Weis Universal Gravity Hinge which is standard equipment on all Weis METALUNITS, is the result of long years of experience. The construction of the hinge is shown at the left. Moving parts are completely enclosed and cannot accumulate dirt nor be tampered with in any way. The ball bearing roller is mounted to maintain geometrical continuity of contact with its race, thus eliminating side thrusts and consequent wear. Ball bearing roller and roller race are of case hardened steel, cadmium plated.

Full information about METALUNITS may be had without obligation . . . HENRY WEIS MFG. Co., INC., Elkhart, Indiana.

Turn now to the six-page insert in color in Sweet's, 1930 edition, following page B2388, for full information concerning Metalunits

WEIS METALUNIT
STALL DOOR AND HARDWARE

Find the HIGGIN Screens!

They're almost invisible . . . . they *had* to be, on narrow casements like these. Ordinary screens would have shut out most of the light and air. But Higgin's rigid, metal frames are so slender, Higgin's strong, bronze mesh is so fine, and every Higgin job is planned so carefully . . . . that each screen blends beautifully with the design of its opening and lets in a maximum of ventilation and light!

That's why Higgin All-Metal Screens should be put on all jobs, the simple as well as the difficult. Whether of the sliding, swinging or rolling type, they are designed individually to harmonize with the architectural scheme of the building and at the same time to give each window the greatest possible free area. Call upon the services of the Higgin Specialist in your locality. Let him work with you. You will find that he is familiar with your problems and that he can solve the most difficult ones effectively and beautifully.

THE HIGGIN MANUFACTURING COMPANY
Specialists in Screens Since 1893
General Offices: Washington Avenue, Newport, Ky. *Branch Factories:* Kansas City, Mo., Toronto, Ont.

HIGGIN
ALL METAL
SCREENS

AIA File No. 35PI - - Screens

Refer to Sweet's for complete data on Higgin All-Metal Frame and Rolling Screens, All-Metal Weatherstrips and Access Panels Folder on Venetian Blinds.

There's Safety Ahead on the Diamond Tread
of "A.W." *Rolled Steel* Floor Plate

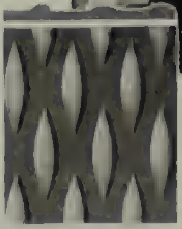
SAFETY is combined with long life and low maintenance in under-foot surfaces when you specify "A.W." Diamond Pattern Rolled Steel Floor Plate.

Its distinctive pattern is composed of raised, oval-shaped, rounded-top diamonds, carefully spaced and properly proportioned. This pattern provides traction and anti-slip qualities under-foot in every condition that may be met.

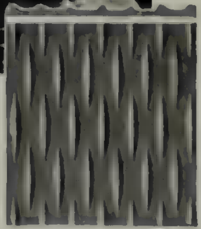
Because the raised pattern has no flat surfaces, and is free from buttons, pockets or other impediments, drainage is thorough from every angle. Moreover, the pattern is pleasing in appearance and harmonizes with practically every architectural surrounding.

For complete data, see page 789, Section A, in Sweet's, or send for booklets.

"A.W." Floor Plate installed on inside fire escape in Evergreen Hall Apartments, Woodbury, New Jersey.



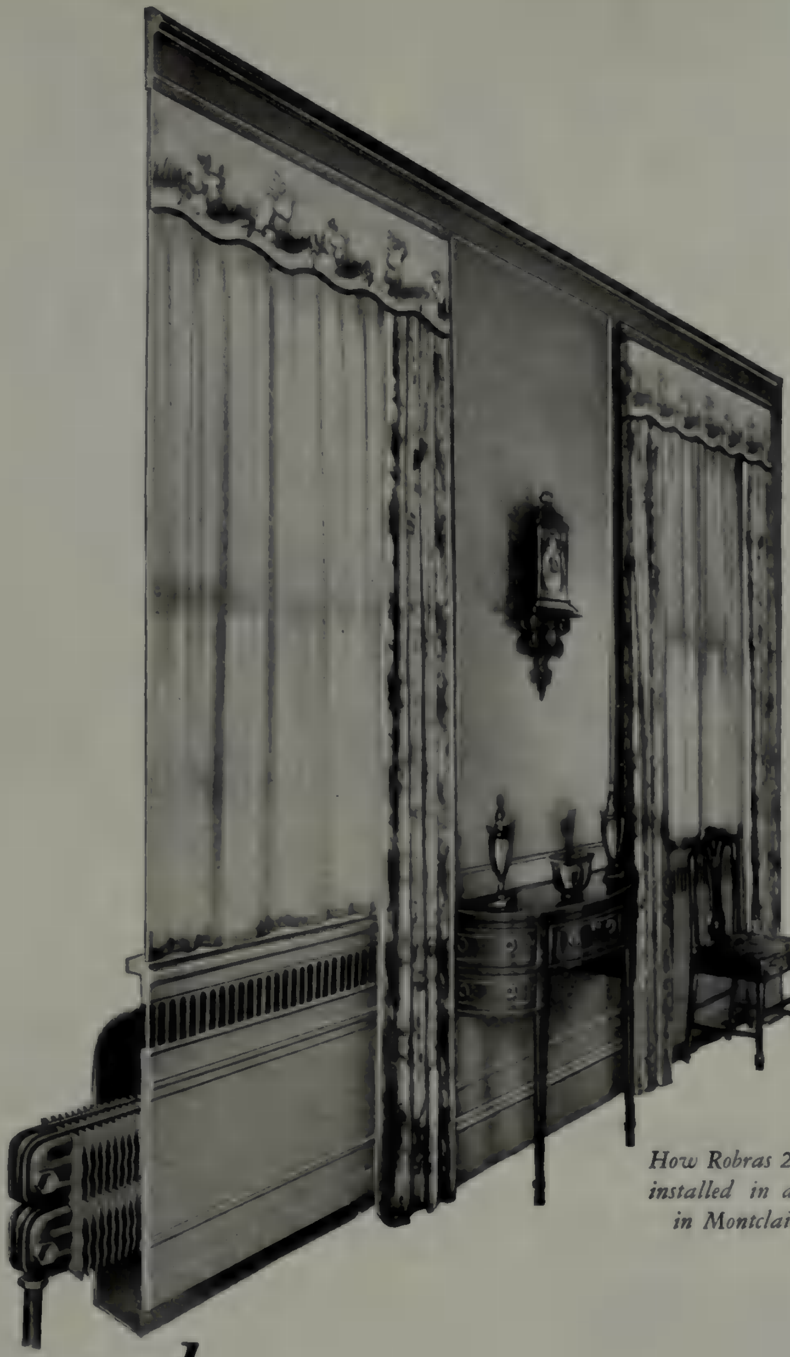
"A. W." Diamond
(¼ Size)
Furnished in all commercially-rolled metals and alloys, in thicknesses of from ⅛" up to 1".



"A. W." Diamondette
(¼ Size)
Furnished in all commercially-rolled metals and alloys, in Nos. 16 to 12 Gauges and in thicknesses up to ¼".

ALAN WOOD STEEL CO. -A.W.- CONSHOHOCKEN, PA.

"A.W." *Diamond Pattern Rolled Steel* Floor Plate



How Robras 20-20 were installed in a residence in Montclair, N. J.

Discovered . . . a place for the radiator!

And, as it happens, not a very big place. Nor a very conspicuous one, either.

For the Robras 20-20 Radiator can be installed in the 4-inch space between the standard studding in the wall, out of sight, out of the way.

Nor does the *shape* of the space offer any limitation. Practically *any* shape *anywhere* is the right shape. Robras 20-20 Radiators are designed to offer versatility in installation.

There is, then, no need to "find a place" for these radiators. There is no need to reconcile an obviously "cast-iron" period with an otherwise flawless Georgian or Early American period.

The last ugly problem of interior layout is gone!

(For the rest of the story about these fast-heating, large-fin-area, sturdy, electrically-welded brass radiators, consult Sweet's catalog, one of our offices or your AIA file.) ROBRAS 20-20

ROME BRASS RADIATOR
CORPORATION

ROME BRASS RADIATOR CORPORATION, ONE EAST FORTY-SECOND STREET, NEW YORK, N Y.

ONE of the many important jobs on which services of inspection and testing of materials of construction were performed by our company, is the striking building at 333 North Michigan Boulevard, Chicago (shown here) for which Holabird & Roche (now Holabird & Root) were architects. Hegeman-Harris Co. were General Contractors.

See Sweet's, A112

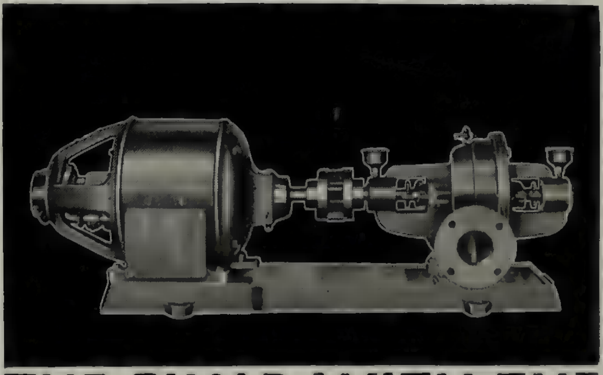
STEEL AT SHOP AND FIELD
CEMENT ~ CONCRETE
CONCRETE SUPERINTENDENCE

The ROBERT W. HUNT COMPANY, *Engineers*

INSPECTION ◆ TESTS

CHICAGO ALL LARGE CITIES

So Many Thousand Users Can't Be Wrong!



THE PUMP WITH THE WIDE OPERATING RANGE

A SUPERIOR product WILL be recognized. Outstanding merit wins friends and keeps them.

Thousands of Westco Turbine Pumps are in active service. Thousands more go into service annually. Each succeeding year sees the demand for Westco Pumps greater. This steadily increasing volume, we believe, shows clearly that "Westco" represents an outstanding value in the small pump field. For such duties as boiler feed, condensers, refrigeration units, circulating systems, spray ponds, etc. Wesco Turbine Pumps provide the ultimate in efficiency and trouble-free operation.

It is a safe bet that SO MANY THOUSAND USERS CAN'T BE WRONG.

WESTCO-CHIPPEWA PUMP COMPANY
Factory and General Offices, Davenport, Iowa
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Wide Operating Range — Perfect Hydraulic Balance — Only One Moving Part — No Metal to Metal Contact — Double Suction — Ball Bearing — Direct Motor Driven at 1725 r. p. m. — Up to 150 lbs. Head Pressure in Single Stage

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Westco-Chippewa Pump Company, Davenport, Iowa.
Please send copy of the latest Westco Pump Catalog.
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WESTCO PUMPS

SINGLE STAGE◆◆HIGH PRESSURE

HOW WOULD YOU DRAIN A LARGE SAW TOOTH ROOF?

Josam Saw Tooth Roof Drains Effectively Solve Problem on One of Biggest Roof Jobs

The H. K. Ferguson Co., Cleveland, Ohio Engineers & Builders — *Lockwood-Greene & Co., Boston, Mass. Consulting Engineers* — *W. A. Arthur, Asheville, N. C. Roofer* — *Ed. B. Wright, Asheville, N. C. Plumber* — *American Enka Corp. Asheville, N. C.*

THE unusual application of drains which was developed may prove valuable to you in the structure you are now planning.

Nearly 300 Josam drains were installed both inside and out of The American Enka Corporation to provide the building with proper drainage, but the real problem was to effectively drain the massive roof—and the new Josam Saw Tooth Roof Drain was selected.

Heretofore the setting of a Saw Tooth Roof Drain was a difficult and expensive task, owing to its extreme weight and bulk. Often it was necessary to add additional supports or roof framing to sustain its weight.

All this is now eliminated with the new Josam Saw Tooth Roof Drain. No tipping or tilting is necessary to have it line with the roof surface as its design permits its installation in any kind of Saw Tooth Roof. Josam Drains are being selected by architects not merely to be placed at convenient draining outlets but at every point in the building to protect it against any violent attack of the rain, to prevent the deterioration that seepage brings along, to guard against streaky, discolored walls, excessive moisture, and to preserve the beauty of the building. Josam engineers cooperating with leading architects everywhere will be glad to be called in on the draining of your next structure. Send for the Josam Catalog "G" which shows the adaptability of Josam Products and recommends hundreds of uses.

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THE JOSAM MANUFACTURING COMPANY
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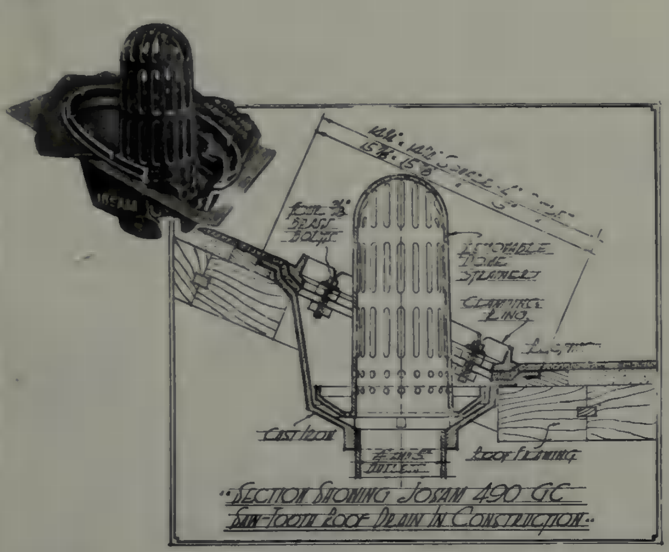

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TRADE MARK REG.
PRODUCTS

Josam Products are sold by all Plumbing and Heating Supply Jobbers.

The Josam Line Includes. Josam Drains for Floors, Roofs, Showers, Urinals, Garages and Hospitals; Josam Swimming Pool Equipment; Josam-Marsh Grease, Plaster, Dental and Surgical, Sediment and Hair Interceptors; Josam-Graver Floor-Fed, Gas-Fired Garbage and Rubbish Incinerators; Josam Open Seat Swing Check Valves; Josam Adjustable Water and Gas-Tight Closet Outlet Connections and Bends.

There Are No Substitutes For Josam Products

Insulate with

U. S. MINERAL WOOL

· COLD-PROOF · HEAT-PROOF ·

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Comfort Indoors Whatever The Weather

FOR a home about to be—what better assurance of livable all-year comfort than proper insulation? Mineral Wool, the perfect insulator, will stand faithfully between any house and the weather. If it's cold outside—it's cold only *outside.* The rooms within remain comfortable—demanding much smaller expenditures for heating. And in summer, too, it proves its worth by keeping blistering heat at bay. Mineral Wool's all mineral. It's sanitary, indestructible, easily applied and surprisingly inexpensive. Send for a free sample. We'll mail it at once along with an illustrated booklet that contains real information for the "weather wise."

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...are made in...

STEEL ENAMELED
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They are procurable in one piece up to 60x156 inches. The use of stock dies, either separately or in combination, offers an inexpensive method of producing grilles for special requirements.

Our new handbook is more than a catalogue; it's a text book. Let us send it to you free of charge.

See Sweet's Architectural and Engineering Catalogs for Specifications.

WICKWIRE SPENCER STEEL CO.
39 East 42nd St., New York City

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A few desirable territories are still available for responsible dealers to distribute Clinton Grilles

WICKWIRE SPENCER STEEL

Wickwire Spencer Steel Co.
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Please send me additional information regarding Clinton Grilles.

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BUILD TO LAST

The modern idea in Food Service Equipment!

Installation: *Kitchen No. 1, J. L. Hudson Company Store, Detroit. Architects:* SMITH, HINCHMAN & GRYLLS, *Detroit. Fabricator:* DUPARQUET, HUOT & MONEUSE COMPANY, *Detroit.*

The J. L. Hudson Company Store

DETROIT, MICH.

equipped with Monel Metal for permanence

Owners and architects have found that it never pays to install any but the finest food service equipment. Hard use, the ravages of time and corrosion—all these play havoc with equipment that is not designed and built to last.

It is natural, therefore, that Monel Metal should be specified for modern food service installations. It possesses the exact properties which assure long life and operating economy during a long life.

Since it is an alloy of Nickel and copper, Monel Metal cannot rust. It resists corrosion and has no coating to chip, crack or wear off. Monel Metal's lustrous beauty is permanent—it is easy to clean and keep clean.

The silvery attractiveness of Monel Metal is in keeping with present trends in decoration. As a result of the present popularity of white metals, this lustrous alloy is now being employed by architects and designers to achieve modern decorative effects. You can safely specify this metal that has been "proved in service."

"MODERN KITCHENS", A 72-PAGE BOOK CONTAINING VALUABLE FOOD SERVICE DATA FOR USE IN SPECIFYING EQUIPMENT, WILL BE SENT ON REQUEST.

MONEL METAL

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company. The [illegible] "Monel Metal" is a registered trade mark.

INCO MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

1855 - SEVENTY-FIFTH ANNIVERSARY - 1930

TO KEEP STYLE PURE . . . TO KEEP EACH DETAIL SUBSERVIENT TO IT,
THIS IS A HIGH AND WORTHWHILE AIM
FOR ANY ARCHITECT

CRANE

DESIRING TO RENDER EVERY ASSISTANCE TO ARCHITECTS, CRANE CO.
HAS DEVELOPED, IN ITS COMPLETE LINE OF PLUMBING
MATERIALS, FIXTURES THAT WILL CARRY
OUT A WIDE RANGE OF STYLES

BUSINESS CHAIRS

"IN THE MODERN MANNER"

DESIGN 508

DESIGN 508½

These chairs illustrate but one of the many distinctive designs that are shown in our new catalog which will be mailed to architects and specification writers upon request.

B. L. MARBLE Business Chairs have created a new standard for beauty in office chair design. They are winning architectural approval for their correctness in detail and their ability to blend harmoniously with their surroundings.

The chairs illustrated above portray one of the latest designs in B. L. Marble chairs. They reflect our ability to correctly interpret the changing requirements of the current times and while modern are far from extreme.

Beauty—Individuality—Finest Quality Material—and Superior Craftsmanship together with comfort and extreme "usability" are outstanding features of all B. L. Marble Business Chairs.

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SACKS OF SATISFACTION

THE uniformity of Banner Finish Lime permits the utmost confidence in its use. The contents of every sack is the same. Results can be foretold; guesswork eliminated. Since the lime is of the highest quality, results are uniformly excellent. There can be no substitute for conscientious care in the production of a time-tried product such as finish lime. In making Banner Finish, famous Ohio dolomite, graded to give uniformity of size, is used. It is burned at uniform temperature—with gas. Continuous hydration and air separation complete the carefully regulated process and permit the packing of only a uniformly high quality of lime.

NATIONAL MORTAR & SUPPLY CO. · PITTSBURGH

Charter Member Finishing Lime Association of Ohio

UNIFORMITY

Banner Lime

FAMOUS OHIO FINISH

ADD THE DISTINCTIVENESS OF *LEAD COATED* COPPER

On the new City Hall, Pasadena, California, fifty thousand pounds of Baltimore Lead Coated Copper was used to cover the five tower domes. Installation was made by Universal Sheet Metal Works.

IN seeking just the right medium to express an architectural idea, turn with confidence to this new material, with its wealth of decorative suggestion.

Lead coated copper—in either natural or dark antique color and in various attractive finishes—makes new effects possible. It harmonizes with practically any color scheme—it does not change with age, except for a softening of the gray tones—it causes no discoloration.

The permanency of copper is a factor of first importance in modern construction. Add to this the additional protection of lead coating which is impervious to acids and salts and this exceptional material will render service unimpaired for generations.

Write today for information regarding the high test purity of Baltimore Copper and samples showing the attractive finishes of lead coated.

BALTIMORE COPPER MILLS

Division of Revere Copper and Brass, Incorporated

Dept. 210 BALTIMORE, MD.

LOOK FOR THE NAME
STAMPED ON EVERY
FOOT OF CORD

Why SILVER LAKE SASH CORD Lasts Longer

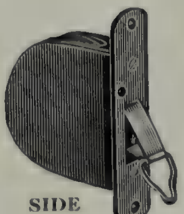
Made of 100% long staple cotton. It is tightly braided and pre-stretched. Has no false core to disintegrate or rot away. Diameters are uniform and a special finish makes for better flexing over window pulleys. And, with all the advantages, it costs but a few cents more per window. Write for details.

SILVER LAKE COMPANY
Newtonville, Massachusetts

Silver Lake

CALDWELL SASH BALANCES

Backed by Forty Years' Experience



SIDE

Each Caldwell Sash Balance has a quality built into it that assures satisfaction, and maximum length of service.

Box Frames can be eliminated, thus contributing greatly to making a building of warm construction. They also permit the use of narrow mullions and double hung windows in rows to give the casement effect. Mortises can be cut at the mill to one size. When the saving of labor and material is considered, they cost no more than ordinary weights and cords.

TOP

Send for booklet "Present Day Architect"
Giving Mortise Dimensions

CALDWELL MANUFACTURING COMPANY
ROCHESTER, NEW YORK, U. S. A.

A Trumbull Panelboard Installation

Sold through the
General Electric Co.

The Baltimore Trust Company Building,
Baltimore, Maryland

TAYLOR & FISHER, Baltimore
Architects

CHARLES L. REEDER, Baltimore
Engineer

Architects may be interested to know that complete "Circle T" Trumbull installations, including Panelboards, Switchboards and Switches of various types, are to be found in thousands of the best buildings erected in all parts of the country. "Circle T" Trumbull engineers gladly cooperate with architects and engineers in suggesting practical layouts. On request, copies of these publications: Safety Switches; Trumbull "Controlite"—Theatre Switchboards; Flex-A-Power—The Convenience Outlet for Power in Industry; Trumbull "Cheer"—A monthly publication of the Trumbull line.

THIS splendid building, typical of the trend of the day in skyscraper design, was equipped with lighting panelboards and cabinets of Trumbull standard construction, there being 62 type NP3—BSF panels and cabinets totalling 2400 circuits and 20 type NTP3—BSFD panels and cabinets totalling 750 circuits.

One of the interesting features of this job is that, although the building is a very large one, very few special features were required in the panelboard arrangements. This aided greatly the design, manufacture and delivery of the equipment and is a testimonial to the Engineers.

Although very heavy loads were imposed by the flood lighting circuits, Trumbull standard panelboard switches were able to handle them without difficulty.

See the Trumbull "Circle T" catalogue in the new 4-volume Sweet's, Vol. D, pages 5164-5165.

THE TRUMBULL ELECTRIC MANUFACTURING COMPANY

Plainville . . . Connecticut

A GENERAL ELECTRIC GE ORGANIZATION

NEW YORK • PHILADELPHIA • CHICAGO

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American Radiator Heating keeps these churches COMFORTABLE . .

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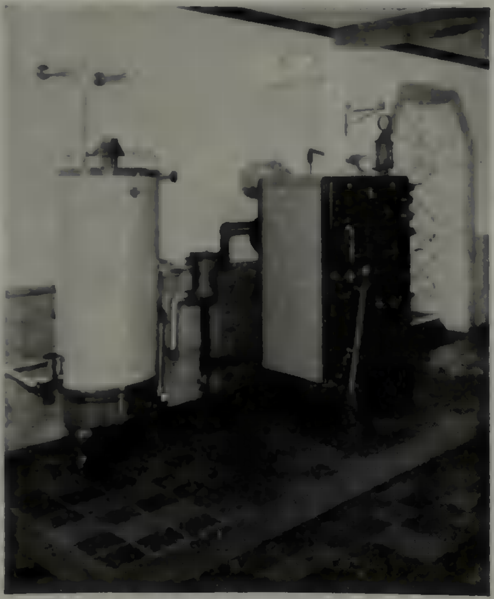

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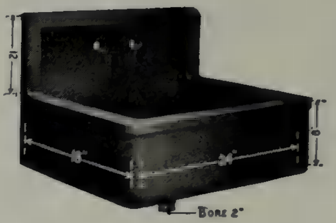

Figure 237
Acid Proof One Piece Laboratory Sink with Back

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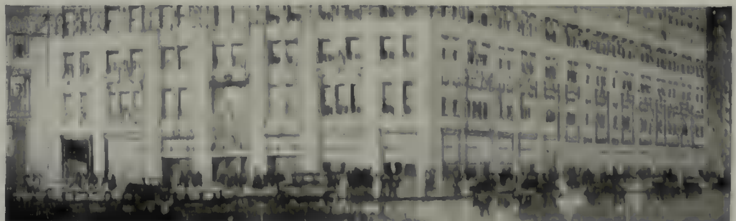
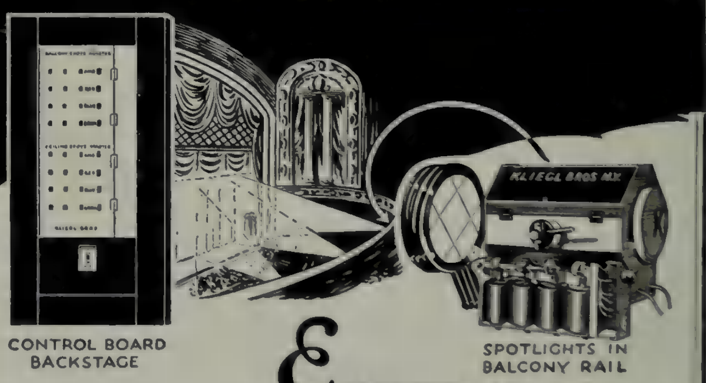


BALCONY SPOTLIGHTS
with Remote Control Color Frames



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Write for Bulletin No. 3

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Lighting of the stage being a highly developed specialty, we are prepared to give architects the counsel of men who have at command our ten years of experience in this specialty. One of them is located in each of the cities named here. His name is in the classified telephone directory. Call or write him or us.

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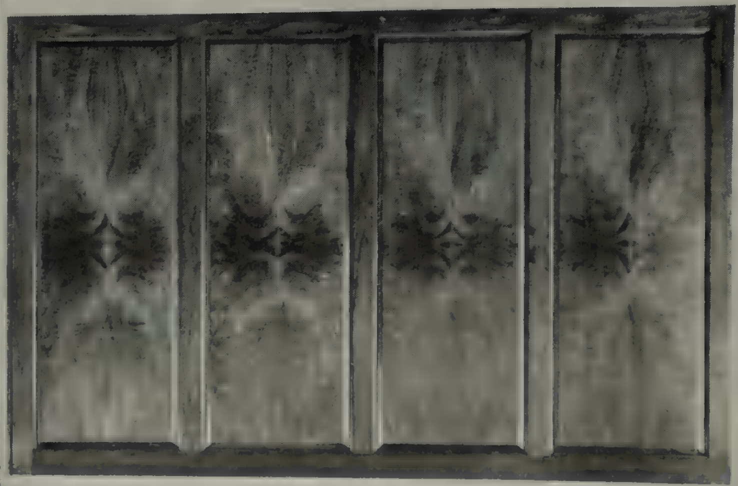

Unusual Cabinet Millwork

Last month's illustration of the Sport Shop in the Wm. Penn Hotel, Pittsburgh, Pa., showed the striking effect of Paneled Woodwork in Sound Knotted White Pine. The illustration above, a section of the Panelwork for the Director's Room, Hoffman LaRoche Chemical Co., Nutley, N. J., shows Native Black Walnut with Butt-Crotched Panels, undoubtedly America's Premier Cabinet Wood. Common Wood or the Best, our careful selection of materials and quality of workmanship give a finished product entirely satisfactory in its class. Our prices are consistent with the high standard of quality maintained. If you contemplate similar work, we would appreciate the opportunity to serve you.

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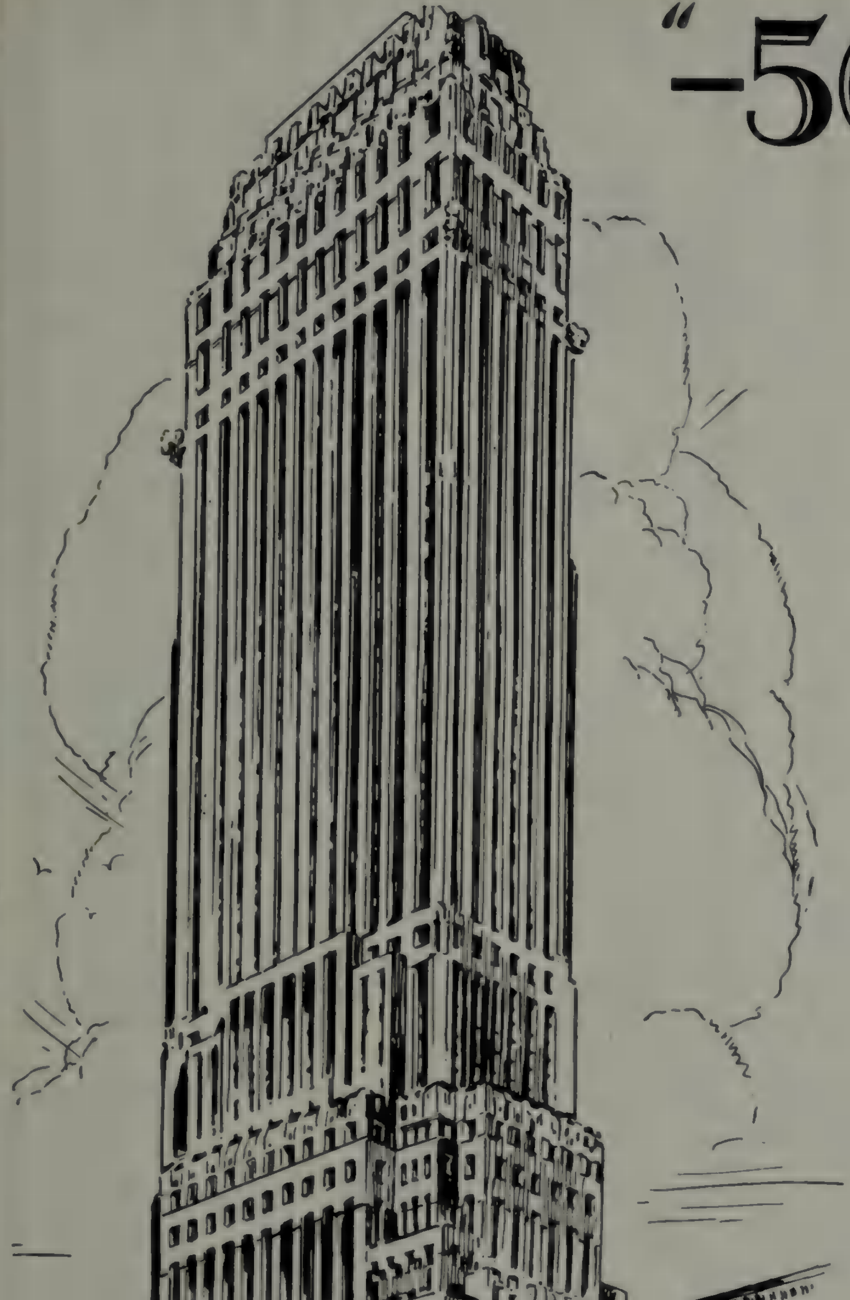

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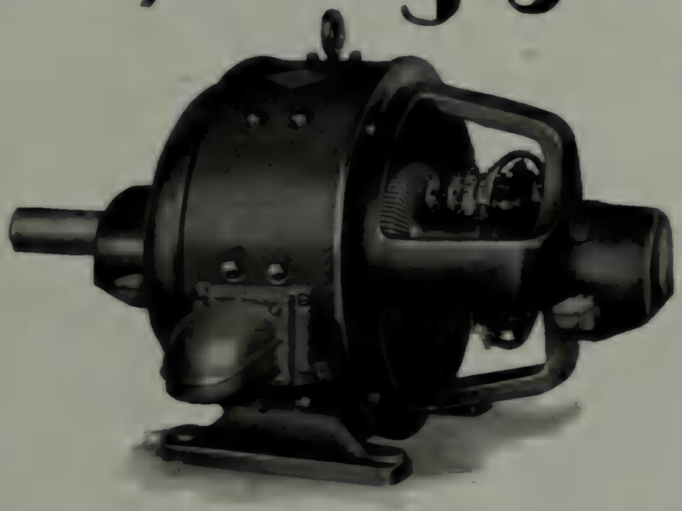

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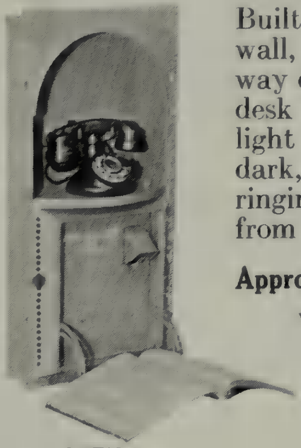

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ARCHITECTS' ANNOUNCEMENTS

CALENDAR OF EVENTS
GENERAL ANNOUNCEMENTS

March-April	Fifth International Exhibition of Housing and Modern Industrial Applied Arts at Nice, France.
March 15-22	National Better Home and Apartment Exposition, Madison Square Garden, New York; April 14-21, New Haven, Conn.; April 22-29, Waterbury, Conn.; April 30-May 7, Hartford, Conn.
March 24-28	Building Officials' Conference of America, Annual Meeting, Cleveland.
March 31-April 5	Twelfth Annual Home Show, Grand Central Palace, New York.
April 5-12	Home Complete Exposition, Indianapolis.
May 20-Oct. 1	Exhibition of modern Architecture and Industrial Arts at Stockholm, Sweden.
May 21-23	American Institute of Architects, Sixty-third Convention, Mayflower Hotel, Washington, D. C.
May 26-30	Fifth International Congress of Building and Public Works, London.
June 19-30	The Fourth Pan-American Congress of Architects and Architectural Exhibition at Rio de Janeiro.
Aug. 4-9	International Exposition of American Import Trade, Grand Central Palace, New York.
September	International Congress of Architects at Budapest.
Nov. 18-29	Art Exhibition, Royal Institute of British Architects, London (9, Conduit Street).

COMPETITIONS

March 1	Closing date of annual competition for the Prize of Rome in architecture, painting, sculpture and musical composition. The competitions are open to unmarried men not over 30 years of age who are citizens of the United States. The stipend of each fellowship is $1,500 a year with an allowance of $500 for transportation to and from Rome and $150 to $300 for materials and incidental expenses. Residence and studio are provided at the Academy, and the total estimated value of each fellowship is about $2,500 a year for three years, with opportunity for extensive travel. Entries for competitions will be received until *March first*. Circular of information and application blanks may be obtained by addressing Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.
March 10	Closing date for drawings in the Steel-Bridge Competition being held by the American Institute of Steel Construction.
March 14	Programs issued for A. W. Brown Scholarship. Address Wm. Dewey Foster, architect, 25 West 45th Street, New York City.
April 1	Closing date for competitors for the Walter L. Hopkins Scholarship of $500, open to all architectural draftsmen who have never been abroad and who have been employed in architects' offices for a period of at least two years previous to May 13, 1930. Address the Beaux-Arts Institute of Design, 304 East 44th Street, New York City.
April 19	Entries for Princeton prizes, see page 182.

John Knox Ballantine, Jr., architect, announces that his new office is at 137 Harlan Place, San Francisco, California.

Walter G. Bartels, architect, has opened offices at 270–2 Main Street, Hackensack, New Jersey, next to the Johnson Library.

The organization of the late Henry Adams, consulting mechanical engineer, announces that it will continue its engineering practice as Henry Adams, Incorporated. Messrs. Ernest H. Adams, Clarence T. Adams and Harry W. Glaser have been joined by Mr. Edward L. Crosby, mechanical engineer, 1263–69 Calvert Building, Baltimore, Maryland.

George C. Burnett, architect, announces the opening of an office in the Builders Exchange Building, Santa Ana, California.

Michael S. Diamond, architect, announces the removal of his offices to the St. George Theatre Building, 25 Hyatt Street, St. George, Staten Island, New York.

The firm of Henry J. McGill—Talbot F. Hamlin,415 Lexington Avenue, New York City, has been dissolved.

Talbot Faulkner Hamlin has opened a new office for the practice of architecture at 11 West 42nd Street, Room 2936, New York City.

Henry J. McGill is continuing the practice of architecture at 415 Lexington Avenue, New York.

John Hanifen, architect, and Strawn A. Gay, have established an office in the Murray Building, Streator, Illinois.

Tom Harding, architect, has moved his offices to 1416 Donaghey Building, Little Neck, Arkansas.

Harry K. Jensen announces the opening of offices in the Buildings Exchange Building, Hobart and Webster Streets, Oakland, California, for the practice of architecture.

W. Oscar Mullgardt has been admitted to partnership in the firm of Mauran, Russell & Crowell, for the practice of architecture, at Saint Louis.

Schwab, Palmgreen and Merrick, architects, have moved to new offices at The Koppers Building, Pittsburgh.

Fritz Steffens and William A. Gustafson announce the opening of their office, for the practice of architecture, at 101 Park Avenue, New York City.

John Jerome Tucker and James Milford Burgess announce that they have formed a partnership for the practice of architecture under the name of Tucker and Burgess, Bishop Building, Norwalk, Connecticut.

John D. York, architect, announces the opening of his office at 307 Luhrs Tower, Phoenix, Arizona.

Frank A. Winn, Jr., architect, announces the removal of his offices to the Stovall Office Building, Tampa and Madison Streets, Tampa, Florida.

OIL BURNERS DEMAND A SPECIALIZED BOILER

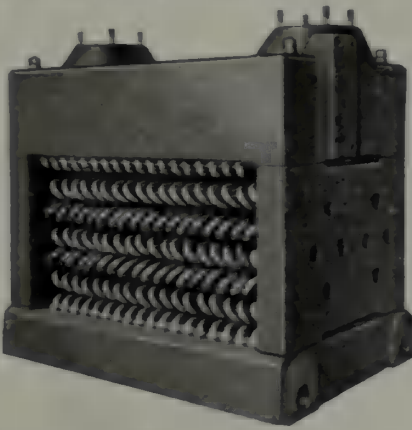
OIL-HEAT is sudden and intense, reaching its peak temperature almost the instant the burner is ignited . . . There is no period of gradually increasing temperatures, and gradual heat absorption, as with a coal fire.

To work efficiently and economically with an oil-burner—to prevent *waste* of the heat so quickly generated—a boiler must be able to *absorb* this heat as fast as it is produced.

Bryan has designed a boiler which does this—largely through the use of copper tubes which are capable of absorbing heat nearly eight times as fast as cast iron—and through an entirely new principle of construction which increases water circulation proportionately. All heat generated is absorbed and transmitted almost instantly, with a maximum of efficiency. In actual service, Bryan Copper-Tube Boilers consistently show a fuel saving of 30 percent to 50 percent over other types.

The Bryan Copper-Tube Boiler has little in common with other boilers. It was designed from the outset to take advantage of the combustion characteristics peculiar to oil and gas—and to do this it was found necessary to depart completely from conventional coal burning boiler design.

The complete story of the Bryan Copper-Tube Boiler, together with the usual technical data, is contained in A.I.A. File No. 30C1, recently issued. If you do not have this file, we shall be glad to forward it, if you will write.



RIGHT: *Contrast this maze of copper-tubes through which every heat unit must pass in the Bryan Boiler, with the bulky, heavy cast-iron sections of the conventional coal-burning type of boiler. With Bryan there is no "laning" or stratification of the hot gases. The heat is broken up, time after time, by rushing head-on into the copper-tubes, which are capable of absorbing and transmitting heat nearly eight times as fast as a cast-iron section of equal size.*

BRYAN STEAM
CORPORATION
(Boiler Division)
PERU, INDIANA

BRYAN
Copper-Tube
BOILERS

RAGNAR ÖSTBERG
Architect of the Stockholm Exposition, already well known for his Stockholm City Hall

NOTES AND COMMENTS

THE STOCKHOLM EXPOSITION, 1930

Large numbers of exhibition halls, comparatively small in size and with walls made almost entirely of glass, feature the planning for the Exposition of Swedish Arts and Crafts, opening at Stockholm in May. Construction is already well under way and by spring the only task remaining will be the placing of objects on display.

By making the halls small and more numerous than customary, Architect E. G. Asplund has sought to minimize the fatigue of visitors. Flowered gardens with benches separate the halls, and with the large expanses of glass walls. The exhibits can be seen as well from the exterior as from the interior. At night, when the halls will be closed, they will be brilliantly lighted from within, revealing the entire contents. The buildings are all connected by passageways so that there is no need for visitors to risk bad weather.

Characteristically—for in Sweden eating is a national pastime—the restaurants and cafes seem almost as numerous as the exhibition halls. In these Architect Asplund has made use of the possibilities of modern construction to achieve some unusual and interesting designs. Those by the water's edge have been elevated on stilts, in the Corbusier fashion, and the ground utilized as additional space for tables and outdoor entertainment. Existing trees on the site go through the floor to provide shade on upper terrace levels.

The dancing pavilion is roofed with glass. Artificial illumination is thus done away with since the midnight sun will furnish sufficient light for the dancers. Colored glass will give the desired effects for a ballroom setting.

The transportation building, where there will be exhibits of the various media of travel—automobiles, locomotives, boats, airplanes—has been designed from a functional point of view, the architecture being subsidiary in interest and serving primarily as a setting for the exhibits. The use of steel and cantilevered construction gives this building an interesting flexibility of form.

All the buildings are oriented so that they front on the bay. In the center, between the exhibition halls and the Strom, is a large open space, terraced in gradual slopes and holding 50,000 persons, which will be devoted to orchestral performances and festival plays. Dominating this terraced plateau will be an advertising tower, 80 meters high, built of steel and carrying as decorative motifs the advertisements of the shops at the exposition. On the lower part of this tower there will be an observation platform, cantilevered out in steel, inclosed in glass and containing individual telephone booths for newspaper reporters "covering" the exposition. Another platform at the top of the tower will give a view of the environs of Stockholm.

C. Theodore Larson.

THE PRINCETON ARCHITECTURAL PRIZES

1930–1931

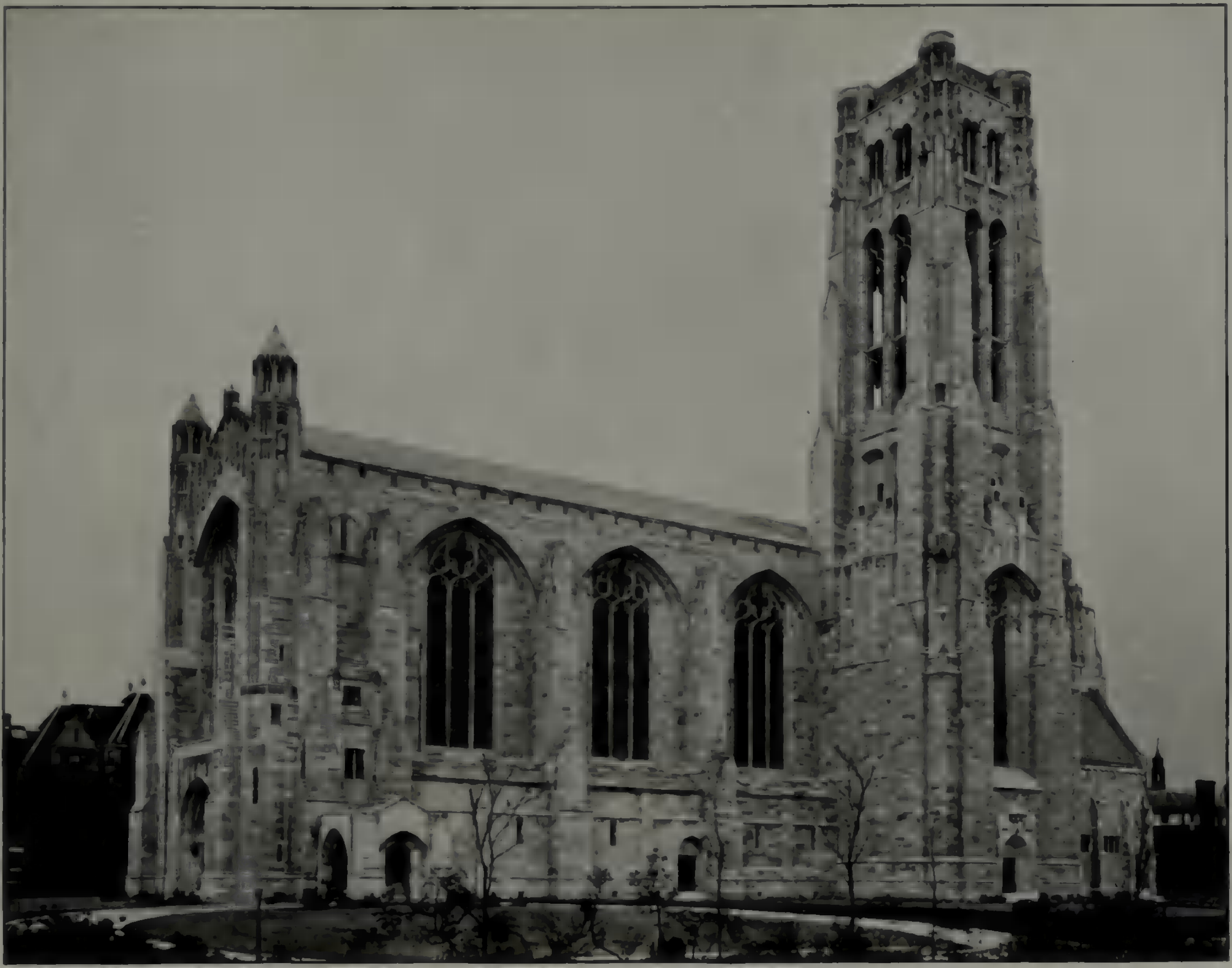
Two competitive prizes of eight hundred dollars ($800) each, in the School of Architecture, Princeton University, are announced for the year 1930–1931. The purpose of these prizes is to permit men of unusual ability, who desire to complete their professional training, to profit by the opportunities offered by the School of Architecture, the Department of Art and Archaeology, and the Graduate School, of Princeton University.

The prizes will be awarded as the result of a competition in design to be held from 9:00 A.M., May 22, 1930, to 9:00 A.M., June 1, 1930. The winners will devote the following school year to the study of Advanced Architectural Design, and such other subjects as they may elect. They are exempt from tuition fees.

Candidates for these prizes shall be unmarried male citizens, not less than twenty-one nor more than thirty years of age on September 1, 1930, who have been employed as draftsmen in architects' offices for not less than three years, or who have otherwise demonstrated their ability in architectural design.

Applicants to enter the competition for the prizes must be filed on or before April 19, 1930.

For application blanks, and regulations governing the competition and award, address the Director, the School of Architecture, Princeton University, Princeton, New Jersey.



Universal Casements—The University of Chicago Chapel, Chicago, Ill. Bertram Grosvenor Goodhue Associates, Architects

CRITTALL CASEMENTS EFFECTIVELY USED IN UNIVERSITY OF CHICAGO CHAPEL

The exquisite chapel at the University of Chicago is an outstanding example of recent ecclesiastical architecture.

In the large main windows Crittall Casements are employed as ventilators—a typical example of the use of metal casements in art glass design, where the balance of the window is glazed directly into stone. In the small windows, too, Crittall Casements—deep-set in the thick stone walls—contribute to the beauty of this charming chapel.

The beauty and utility that make Crittall Casements ideal for buildings of this type can be incorporated to advantage in all of your projects. Whether your commission be an imposing public edifice or a modest dwelling, there is a Crittall Casement available for your every window requirement.

Crittall Casements are built in three complete lines. Universal Casements are custom-built, to your specifications, in bronze or steel. Norman Casements comprise a full line of quality steel casements in standardized sizes, designs and types. The Stanwin line offers a complete selection of standard casements in the competitive price class.

Our latest catalog is in Sweet's—pages A1131-A1200. Upon request we will mail you separate copies for your drafting room files.

CRITTALL CASEMENT WINDOW CO.
10943 Hern Avenue ◂ ◂ Detroit, Michigan

CRITTALL CASEMENTS

STANWIN CASEMENTS ◂ ◂ **NORMAN CASEMENTS** ◂ ◂ **UNIVERSAL CASEMENTS**

TO STIMULATE LOCAL CONSTRUCTION

In a plea to business men to do their part in stimulating construction, Dr. John M. Gries, of the U. S. Department of Commerce, said in a recent speech before the New England Council, "only the persons living in the locality where certain improvements are planned are in a position to know when a project should go forward. Only the local people can pry worthy projects loose."

Dr. Gries, as Chief of the newly organized Division of Public Construction, is laboring to make it a clearing house for the government's building program and the various contacts formed by President Hoover with state and local government officials to increase structural activity.

"This, to me," Dr. Gries continued, "seems to be a great opportunity for business men to help remove the restrictions and the red tape that are retarding progress, and if they, in cooperation with state and local governments, will become active in this direction, the result will mean much new business and employment which furnishes the purchasing power for the products of all our industries.

"Federal, state, municipal and county governments are busy pushing projects out into the construction current daily. Many projects which had been planned had not been launched. Some were lodged on rocks. Others were in still water. Some had drifted around in a slough for months and still others had sunk. Everywhere, public officials responsible for construction are initiating work that had been planned and are trying to remove restrictions so that work may go ahead uninterruptedly and at an earlier date. Their efforts are meeting with success.

"Reports from the Governors of states indicate public expenditures for the year 1930 in excess of $3,000,000,000. Reports coming in from various states indicate that prompt action has been taken to expedite work wherever possible; that road contracts are being let during the winter instead of waiting until spring; that obstacles and restrictions to work already planned are being removed and projects released in the construction volume.

"In the Federal Government, special steps have been taken to allot the Federal highway fund to states earlier than is customary. The Department of Justice is giving special attention to the question of titles and sites of public buildings. The office of the Supervising Architect of the Treasury increased its force of architects, engineers and draftsmen, and it is expected that 16 major contracts will be let before April first. The Veteran's Bureau has called for bids on hospitals in Hartford, Conn., and Fort Lyons, Colorado, earlier than had been previously planned. The Rogers Bill recently passed by Congress and signed by the President involved an expenditure of $15,950,000 for increased hospital facilities for our veterans. The Director of that Bureau has speeded up plans for new construction; and bids are to be called for on new construction amounting to more than two and a half million dollars, before April first. The National Park Service of the Department of the Interior has advanced contracts for road work totalling $415,000 for commencement during the period from January first to March first. The Corps of Engineers of the War Department, responsible for waterways and other civilian undertakings, had plans well worked out in advance. In December it called for bids to be opened involving more than $3,300,000 and has continued to call for more bids since that date.

"Practically every Department, Bureau or Division responsible for construction has been able to expedite work earlier than usual and the results will undoubtedly be that millions of dollars worth of work which would normally not be undertaken until later in the summer will be actively pressed during the early spring season. I have given but a few examples to illustrate the prompt action and the teamwork found in the Federal Government Departments.

"You are all acquainted with the extensive program of new construction and improvements, including equipment, of the public utility companies of the country. They assure the public of an expenditure in excess of about $3,250,000,000. The F. W. Dodge Corporation gives, free of charge, to the Department of Commerce, its full daily service regarding contemplated projects and contracts let. The Division of Public Construction follows the contemplated projects. The bond issues for public improvements and the contemplated issues are also given attention in this Division. The National Education Association has submitted reports from several thousand school officials covering the local school building programs. In this way we try to follow the situation and aid those who are trying to expedite worthy projects."

PLANNING BOARD RIGHTS UPHELD

The decision of the New York State Court of Appeals in the case of the Village of Lynbrook against George J. Cadoo *et al.*, upholds the reasonableness and propriety of the various enabling acts for the planning of cities, towns, and villages in so far as these acts require the approval of a planning board before a plat may be filed with the County Clerk.

The decision of the Court stated that it was not called upon to pass on the details of these laws but it included the following opinion:

The Court held that although the Village of Lynbrook had not adopted an official map since the enactment of the statute and consequently had filed no certificate to that effect with the County Clerk, such inaction on the part of the Village should not result in defeating the purpose of the law with regard to filing non-official maps.

The Court therefore ordered the County Clerk to remove from the cancel of record a map filed by the respondent without the approval of the Planning Board.

The Lynbrook decision, planners agree, is extremely helpful, and like the oft-quoted Wulfson and Lincoln Trust zoning cases, will establish a precedent for subsequent court rulings.

A corner of The Kinnear Manufacturing Company's Engineering Department

Take Advantage of Kinnear's Complete Engineering Service

No matter how apparently simple or obviously complex your rolling door problems—you can conserve your time and play absolutely safe by putting them up to "Rolling Door Headquarters" for speedy, accurate solution.

For over thirty years our activities have been concentrated exclusively on designing, producing and improving steel rolling doors for every conceivable type of installation. Therefore, it is but natural and logical that Kinnear Specification Doors will be *right* from every standpoint.

The great majority of America's architects and contractors know from experience that Kinnear Rolling Doors never fail to render complete satisfaction to the building owner—and thus aid materially in safeguarding their most valued asset —REPUTATION.

The benefit of our experience in "engineering" rolling doors is available without charge or obligation. New, illustrated catalog mailed free on request.

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NEW YORK PHILADELPHIA PITTSBURGH KANSAS CITY WASHINGTON

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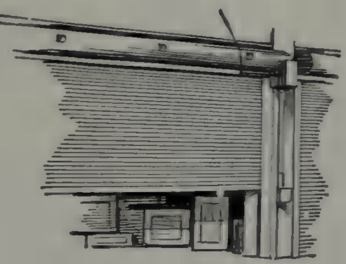
ROLLING DOORS

There *IS* No Equal

KINNEAR Makes Every Type of ROLLING DOOR

SERVICE DOORS



FIRE DOORS *and* FIRE SHUTTERS

MOTOR OPERATED DOORS

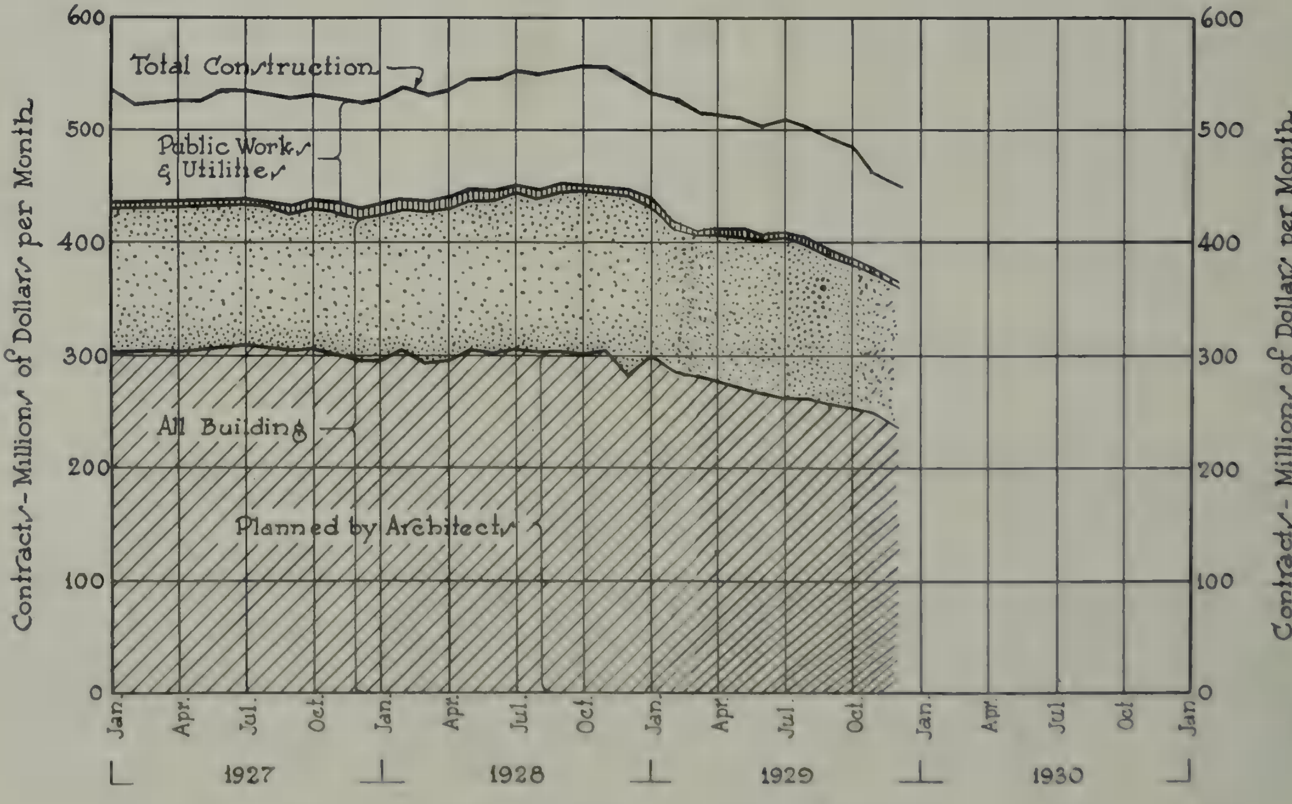
CONSTRUCTION STATISTICS

From the records of F. W. Dodge Corporation, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent of the country's construction volume.

Year, 1929

	TOTAL CONTRACTS		WORK PLANNED BY ARCHITECTS		
	Number of Projects	Valuation	Number of Projects	Valuation	Per Cent of Total
Commercial Buildings	24,137	$ 932,688,400	10,228	$ 717,872,600	77
Industrial Buildings	6,680	756,512,400	2,307	187,070,000	25
Educational Buildings	4,531	381,908,000	3,647	363,527,100	95
Hospitals and Institutions	1,190	152,203,700	887	136,644,600	90
Public Buildings	1,303	120,777,900	755	111,110,900	92
Religious and Memorial	2,277	106,111,200	1,600	94,213,500	89
Social and Recreational	2,484	140,019,400	1,505	115,059,900	82
Residential Buildings	110,498	1,915,727,500	28,106	1,156,872,600	60
Total Building	153,100	4,505,948,500	49,035	2,882,371,200	64
Public Works and Utilities	19,072	1,248,342,000	360	34,777,500	3
Total Construction	172,172	$5,754,290,500	49,395	$2,917,148,700	51
Total Construction, Year 1928	200,255	$6,628,286,100	59,956	$3,639,018,800	55

* * *



Eliminate the Danger of Basement Seepage

Install a Penberthy Automatic Cellar Drainer or Electric Sump Pump

PENBERTHY PRODUCTS

COPPER AND BRONZE THROUGHOUT

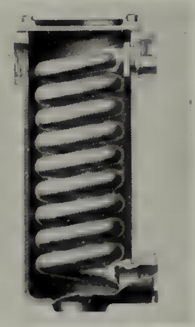
PENBERTHY INJECTOR COMPANY

ESTABLISHED
IN 1886

DETROIT

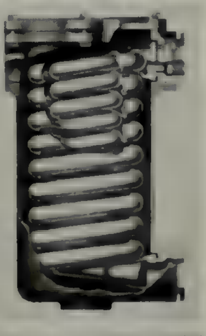
CANADIAN PLANT
WINDSOR, ONT.

Detroit Press Building
Detroit, Michigan
Geo. D. Mason Co., architect, Andrew Ten Brook, contractor. Hot water supplied by Excelso *Indirect* Heater attached to two Kewanee automatically stocked boilers.



Single Coil Heater showing removable copper coils and patented ground joint brass connection.

Triple Coil Model with cover plate removed showing removable copper coils and patented ground joint brass connection.



Double Coil Heater showing removable coils and the exclusive Excelso ground joint brass connection.

In 647,985 Buildings

The fact that Excelso *Indirect* Water Heaters are now in use in some 647,985 buildings is dramatic testimony to the economical effectiveness of this modern fuelless hot water heater.

These half million odd installations include buildings of all types from the smallest of cottages to twenty and thirty story hotels and office buildings—buildings covering entire city blocks—industrial plants where a continual supply of hot water is needed in manufacturing or chemical processes—apartments where Excelso supplies a hundred families or more with hot water.

For practically every type of building, there is an Excelso model that will fill the hot water needs from the steam or vapor heating plant at practically no added cost of operation.

You are invited to write for architect's file showing fourteen different methods of installing Excelso, together with complete information on the various Excelso models and sizes.

EXCELSO PRODUCTS CORPORATION
Division of American Radiator Co.
67 Clyde Ave. :: Buffalo, N.Y.

EXCELSO INDIRECT WATER HEATERS
SIZES FOR ONE FAMILY TO 100

More than 1,800 manufacturers filed their catalogues in Sweet's Architectural Catalogues for 1930. All of these catalogues were prepared to give architects just the information they want for selection and specification purposes. Many of them are complete catalogues in every sense. It is obviously impossible to review all of these 1,800 catalogues but a few which are typical of hundreds are reviewed below to indicate ths scope and character of information contained in Sweet's for 1930.

Window Frames, Doors and Trim

The Andersen Frame Corporation present two catalogues which comprise 25 pages, one of which fills a single page and illustrates and specifies a single product made by the Andersen Foundry Company, a division of the corporation. The other is replete with drawings, specifications and installation instructions pertaining to the corporation's line of white pine door and window frames, sills, casings and interior wood trim. The single page describes and specifies the Andersen Noiseless sash pulley. 25 pp. The Andersen Frame Corporation, Bayport, Minn.

Cork for Insulation

Armstrong Cork & Insulation Co., present a condensed but thorough exposition of the uses of their products in 22 pages. Of this space 19 pages illustrate, specify and describe the installation of corkboard for insulating purposes; one page is devoted to acoustical corkboard, and the remaining two pages to the same material prepared for refrigeration service. Ample illustrations are included. 22 pp. Armstrong Cork & Insulation Co., Lancaster, Pa.

Finishes

A complete architectural treatise on finishes for various materials and surfaces with complete specifications for each finish. Adaptability chart recommends materials to be used for various types of buildings. Each material is fully described as to its adaptability, surface appearance, covering capacity and application. Many color samples are included for several types of enamels, cement coatings, acid and water stains. Berry Brothers, Inc., Detroit, Mich. 22 pp.

Door Locks

Corbin door locks and builder's hardware are the material items which take up 79 pages of this cooperative catalogue in the presentation of P. & F. Corbin's products. This firm with main offices in New Britain, Conn., handle an extremely wide assortment of these articles and adequately describe and illustrate them in Sweet's file. 79 pp. P. & F. Corbin Co., New Britain, Conn.

Steel Casements

The Crittall Casement Window Company are represented in Sweet's file on 69 pages wherein everything in window casements is illustrated. A full array of hardware for these units is given, as are specifications and drawings in all instances. Excellent illustrations are given and photographs of projects on which these products were used are included. 69 pp. The Crittall Casement Window Co., Detroit, Mich.

The Invisible Superintendent at the Mortar Box *Makes Possible One Mortar for all Masonry*

IT IS unnecessary to specify special mortars for different kinds of brickwork. The simple BRIXMENT mix—one part BRIXMENT, three parts sand (no lime, no portland cement)—makes a mortar suitable for *all* masonry.

Tested in piers, its strength approaches that of straight 3-to-1 portland cement mortar. This makes it suitable for foundation, load-bearing or parapet walls and even for tall, free-standing stacks.

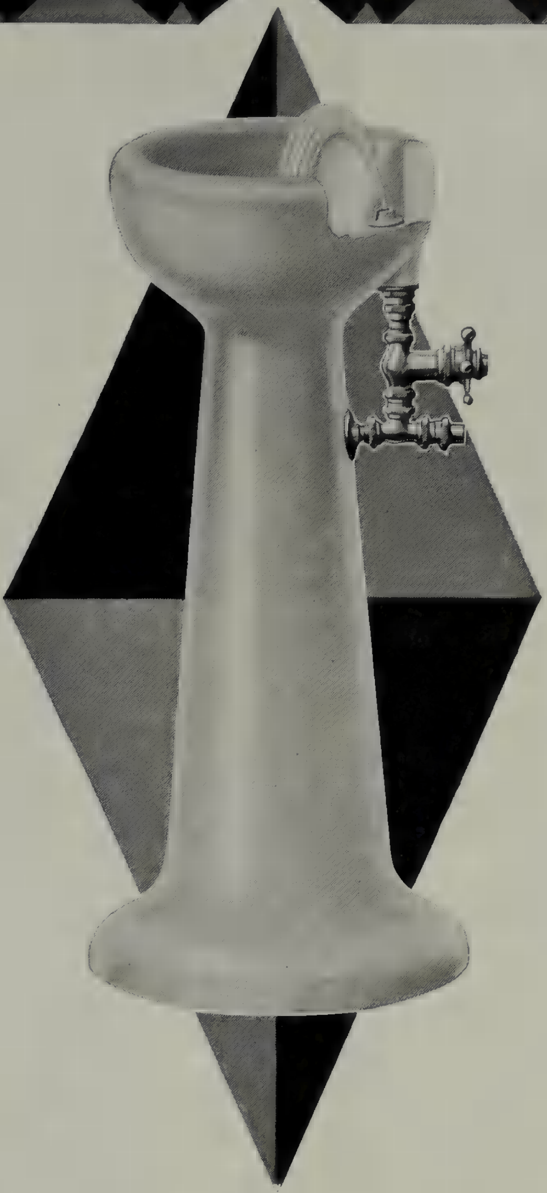
Since it is hydraulic, water-repellent and used without lime, it is ideal for walls below grade. . . . Since it helps prevent efflorescence and fading of mortar colors, it is especially desirable for use with face-brick. . . The economy resulting from its low cost and plasticity justifies its use in backing-up and in partition walls. . . Architect's handbook on request. Louisville Cement Company, *Incorporated,* Louisville, Ky.

District Sales Offices: 1610 Builders Bldg., *Chicago;* 301 Rose Bldg., *Cleveland;* 602 Murphy Bldg., *Detroit;* 101 Park Ave., *New York*

BRIXMENT

for Mortar and Stucco

The unusual plasticity of BRIXMENT mortar makes it especially well suited for setting tile and block because of the long cross-joint used in such work.



R-S Fountains Are Proven Ones!

WHEREVER Rundle-Spence Drinking Fountains are in service they have a splendid record for providing good, clear, refreshing water—free from contamination. Their special design insures a clean drink because lips cannot touch the R-S Nozzle.

Let us send you a catalog which gives you complete information on R-S Drinking Fountains. *Write today.*

RUNDLE-SPENCE MFG. CO.
70 Fourth Street
Milwaukee, Wisc.

RUNDLE-SPENCE

RECENT TRADE PUBLICATIONS—(Continued)

Steel Casements

Steel windows and doors with hardware equipment is the subject of 91 pages occupied by the Detroit Steel Products Company, Detroit, Mich. Numerous illustrations, specifications, and installation instructions are given. 91 pp. Detroit Steel Products Co., Detroit, Mich.

Heating Systems

The C. A. Dunham Co. presents a catalogue describing in detail and illustrating the application of four different types of heating systems as follows:

A Differential Vacuum Heating System.
A Vacuum Return Line Heating System.
A Return Heating System.
A Home Vacuum Heating System.

Each system is clearly described and graphically illustrated. The component parts of each as offered by the manufacturer are shown in detail and complete ratings and capacities are given. Specifications for installing each system are included, giving the architect very complete information and listing all sales offices and representatives of the manufacturer. C. A. Dunham Company, 450 East Ohio Street, Chicago, Ill. 60 pp.

Signalling and Communicating Systems

Intercommunicating telephone systems for offices and industrial plants, private line telephones, apartment house telephones, annunciators, of both target, drop and lamp types for wall, surface and desk mounting, watchman's clock systems, push buttons of all types, foot rail switches and connector panels. A complete description of the H-C Nurses' Silent call system for hospitals using the lock type lamp signals. Systems for 10 volt and 110 volt operation. Doctors' "In and Out" register systems and doctors' paging systems of both flashing lamp and audible call types. Night lights for illuminating hospital corridors. School telephones, bells, buzzers and horns, and laboratory panels for schools. The Holtzer-Cabot Electric Co., 125 Armory Street, Boston, Mass. 40 pp. Fully illustrated.

Electric Time and Programme Clock Systems

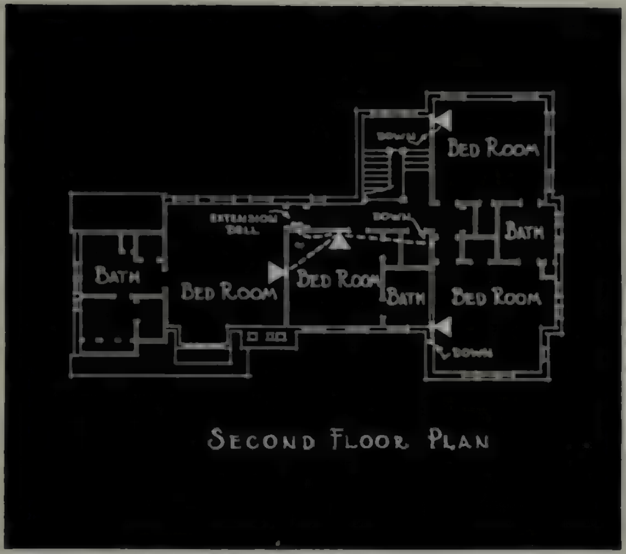
Master Clocks, Styles of Master Clocks, Cases, Movements, Electric Clocks, Secondary Clocks, Time Stamps, Time Recorders, Laboratory Clocks, Telephone and Signalling Systems for Schools and Institutions, Fire Alarm Systems, Emergency Lighting Systems, Battery Charging Equipment. Specifications and Wiring Diagrams of the above mentioned systems and illustrations of all parts in the various systems. Landis Engineering and Mfg. Co., Waynesboro, Pa. 17 pp.

Steel Window and Door Casements

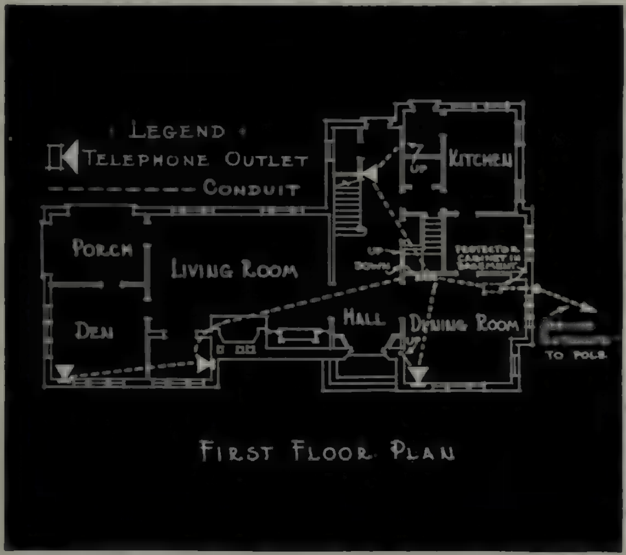
David Lupton's Sons Company take a section of 86 pages to present complete specifications, descriptions and illustrations of their steel window casement and door products. The question of ventilation is ably considered in connection with the many types of materials included. Corrugated wire glass skylights, shelving and partitions are included among the products presented in this catalogue. 86 pp. David Lupton's Sons Co., Philadelphia, Pa.

(Continued on page 102)

Throughout the Country Architects are including Telephone Convenience in their Plans for new Houses



In the home of Mr. Joseph H. Skaggs of Atlanta, Georgia, provision for complete telephone convenience is made by nine telephone outlets, including one in the servants' quarters over the garage. Frazier & Bodin, Architects, *Atlanta, Georgia.*



The appeal of *telephone convenience* is country-wide. In the South . . . as in the Middle West, the Pacific Coast, or along the Atlantic Seaboard . . . architects are planning for it by providing sufficient outlets and conduit for telephone service in the design of new and remodeled residences. Their clients may then have the added ease and comfort that enough telephones give, plus the improved appearance of having the telephone wiring concealed within the walls of the house.

Locations for the telephone outlets are usually determined in conferences between the architect, the client and a representative of the local Bell Company. The home owner can use just those telephone outlets which he needs, and can expand or rearrange the service in the future as he desires.

Architects may consult freely with the telephone company in planning for telephone arrangements. No charge is made for this service. Just call the Business Office.

AMERICAN TELEPHONE & TELEGRAPH CO.
BELL SYSTEM
AND ASSOCIATED COMPANIES

BUILT-IN
to fit any space
and every purse

So wide is the choice of cupboards, cabinets, and closets, that Circle A Kitchen Units fit any kitchen, kitchenette or pantry.

The neat and practical design, the heavy enameled finish, vermin-proof construction and the gleaming chromium plate bring instant approval from the housewife.

Everything needed for the modern kitchen has been included. Hardwood lumber throughout. Constructed for stability as well as efficiency. Circle A Kitchen Units have been approved by architects, contractors, and owners throughout the country.

Yet, these handsome kitchen units are reasonable in cost. Write today for illustrated details. Our planning department can help you select models and arrange layouts. No obligation. Write today.

(Shipped completely assembled and finished in green, gray, ivory or white.)

CIRCLE A PRODUCTS CORPORATION
688 South 25th Street, Newcastle, Indiana

New York office: Farmers Loan and Trust Building,
475 Fifth Avenue, New York City

CIRCLE A KITCHEN UNITS
• • • Fit Any Space • • •

RECENT TRADE PUBLICATIONS—(Continued)

Drinking Fountains

The manufacturers of Vitreous China Fountains for use in public buildings describe their products in detail. They comprise sanitary drinking fountains with automatic stream control, practical drinking mound, non-squirting fountains, electric coolers and ice coolers. General information for the architect is included. Attractively illustrated with dimensions and specifications for each type of fountain, wall fountains, pedestal fountains, combination cooler and drinking fountains. The Halsey W. Taylor Co., Warren, Ohio. 14 pp.

Steel Concreting Forms

The R. C. Mahon Company, Detroit, Michigan, have entered an exposition of their permanent steel concreting forms, metal covered doors, rolling doors, roof decks and roof drains. The Mahon catalogue included in Sweet's comprises 17 pages and is adequately illustrated with both photographs and drawings. 17 pp. The R. C. Mahon Co., Detroit, Mich.

Clay Tile

A complete line of structural clay tile is presented in Sweet's file by the National Fire Proofing Company, Pittsburgh, Pa. This catalogue constitutes 50 pages of the file and fully specifies the many products manufactured under the company's trade name, Natco. It also gives full information on the comprehensive fireproofing service offered by this company to the industry. 50 pp. National Fire Proofing Co., Pittsburgh, Pa.

Builders Hardware

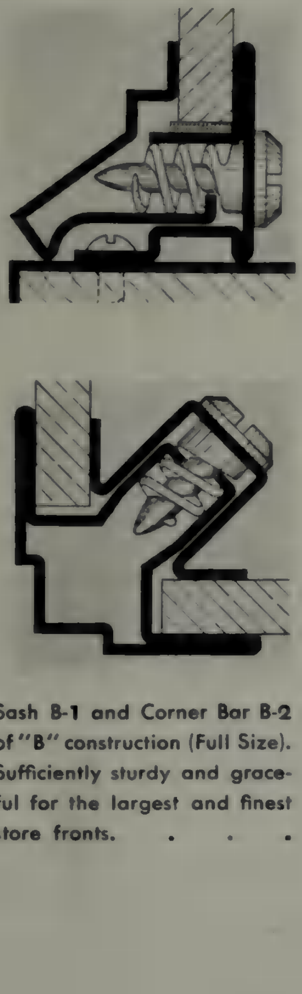
Russell & Erwin Mfg. Co., New Britian, Conn., manufacture an extensive line of builders' hardware which they describe in an 80 page catalogue included in Sweet's file. These 80 pages contain illustrations and specifications on the many types of locks, trim, door stops, holders, specialties, etc., manufactured by this company. 80 pp. Russell & Erwin Mfg. Co., New Britain, Conn.

Gypsum

The United States Gypsum Company is represented in Sweet's file with complete catalogues that comprise a total of 67 pages. Among these pages are found full specification data on acoustical plaster and tile; gypsum lathing and furring products, insulating materials; roof, floor and partition materials; sound deadening systems and materials, and texturing paint. These catalogues are replete with illustrations. 67 pp. The United States Gypsum Co., Chicago, Ill.

Ventilating and Panelouvre

Panelouvre is a metal, louvred ventilating device for use in doors, transoms, windows, walls and radiator enclosures. It is made with stationary or adjustable louvres to control the passage of air. It is used in hotels, clubs, institutions, schools, theatres, residences, industrial plants, etc. The Ventilouvre Co., Inc., Bridgeport, Conn. 24 pp.



Sash B-1 and Corner Bar B-2 of "B" construction (Full Size). Sufficiently sturdy and graceful for the largest and finest store fronts. . . .

CUSTOM-BUILT STORE FRONTS

in

BRONZE, ALUMINUM ALLOY OR COPPER

For excellence of workmanship, true reproduction of design and sound construction we advocate the fabrication of store fronts at our factory. A corps of skilled workmen trained by an institution with twenty-five years' experience in store front building is your assurance of satisfaction. "B" Construction designed along modern lines is now available in the metals mentioned above. Send for Circular on "B" Construction and Full Size Details.

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STORE FRONTS
THE KAWNEER COMPANY
manufacturers of
BRONZE STORE FRONTS, WINDOWS AND DOORS

SEE OUR CATALOG IN THE 1930 SWEET'S

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Subsidiary
BERKELEY, CALIFORNIA

SEE OUR EXHIBIT AT ARCHT'S SAMPLE CORP., NEW YORK CITY

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Kansas City, Mo.
Louisville, Ky.
Memphis, Tenn.
Milwaukee, Wis.
New Orleans, La.
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Water-proof hinge
Patents applied for.

SEALAIR

WEATHER-PROOF IN ANY WEATHER.

When closed, the asbestos-insulated union between sash and frame excludes wind, rain and snow. Even when opened, Sealair affords protection from drafts. The tilt of the sashes diverts the inflow of air, causing it to circulate freely to all parts of the room . . . All sashes can be washed from the inside . . . Furnished in bronze, aluminum alloy or steel.

Send for complete description, specifications and F. S. details.

THE
Kawneer
COMPANY
Niles, Mich.
Subsidiary: Berkeley, Calif.

ALSO WEIGHT-HUNG WINDOWS (Light and Heavy) AND CASEMENTS

CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 210

After reviewing advertisements in this issue—use Sweet's Architectural Catalogues for 1930 for catalogue and specification information on the products of the most of the manufacturers.

Acid Proof Chemical Stoneware
  Knight, Maurice A.
Acoustical Installation—Guastavino, R., Co.
Acoustics
  Boston Acoustical Eng. Division of Housing Company
  Johns-Manville Corp.
Air Compressors
  Westinghouse Traction Brake Co.
Air Conditioner
  Airway Electric Appliance Corp.
  American Blower Co.
  Lewis Corporation
Aluminum
  Aluminum Co. of America
Anchors—Concrete
  Bulldog Floor Clip Co.
Arc Welding—Lincoln Electric Co.
Architectural Supplies
  Higgins, Chas. M., & Co.
Artstone—Rackle, George, & Sons Co.
Asbestos—Johns-Manville Corporation
Baking Machinery
  Read Machinery Co.
Balances, Sash—See Sash Balances
Basement, Windows—Steel
  Detroit Steel Products Co.
  Truscon Steel Company
Bathroom Accessories
  Parker Charles Company
Beads—Corner Metal
  Milwaukee Corrugating Co.
  Truscon Steel Company
  Wheeling Corrugating Co.
Beams, Angles, Channels, Etc.
  Carnegie Steel Company
Belts
  Dayton Rubber Mfg. Co.
Blackboards—Weber Costello Co.
Boiler and Pipe Covering
  Johns-Manville Corporation
  Ric-wiL Company
Boilers—American Gas Products Co.
  American Radiator Co.
  Bryan Steam Corp.
  Heggie-Simplex Boiler Co.
  Smith, H. B., Company, The, Inc.
Bolts—Door—Corbin, P. & F.
Brass and Bronze
  See "Ornamental Metal"
Brass and Copper
  See "Copper and Brass"
Brick
  Finzer Bros. Clay Co.
Bridges—Steel—American Bridge Co.
Builders—Stone & Webster, Inc.
Buildings—Steel
  Carnegie Steel Company
  Nat'l Assoc. of Flat Rolled Steel Mfrs.
Butts—Corbin, P. & F.
  Stanley Works
Cabinet Work—Hyde-Murphy Co.
Cabinets—Kitchen
  Circle A Products Corp.
Cabinets—Medicine—Parker Charles Company
Cabinets—Telephone—Atlas Metal Works
Cabinets—Toilet Paper
  Victoria Paper Mills Co.
Cabinets—Radiators
  Heintz Mfg. Co.
  Tuttle & Bailey Mfg. Co.
Casement Operators—Rixson, Oscar C., Company
Casements—Crittall Casement Window Co.
  Detroit Steel Products Co.
  International Casement Co.
  Mesker Bros. Iron Company
  Truscon Steel Company

- **Cast Stone**
  - Cast Stone Institute
- **Cellar Drainer**
  - Penberthy Injector Co.
- **Cement**
  - Louisville Cement Company
  - Medusa Portland Cement Co.
  - Portland Cement Association
  - U. S. Gypsum Co.
  - Universal Cement
- **Cement White**
  - Medusa Portland Cement Co.
- **Chain Sash**—American Chain Co., Inc.
  - Detroit Steel Products Co.
  - Smith & Egge Mfg. Co.
- **Chairs**
  - Marble, B. L., Chair Co.
- **Channels**—Carnegie Steel Co.
  - Concrete Engineering Co.
- **Church Memorials**
  - American Seating Company
- **Clamps—Lock Joint**
  - Hyde-Murphy Co.
- **Clay Vitrified**
  - Clay Products Association
- **Clocks, Electric**
  - Landis Eng. & Mfg. Co.
- **Columns, Porches, Etc.**
  - Hartmann-Sanders Co.
  - Union Metal Mfg. Co.
- **Compressors—Air**
  - Westinghouse Traction Brake Co.
- **Concrete Accelerator**
  - Master Builders Co.
  - Solvay Sales Corp.
- **Concrete Construction—Reinforced**
  - American Steel & Wire Company
  - Concrete Engineering Co.
  - Truscon Steel Company
  - U. S. Gypsum Co.
- **Concrete Hardener**
  - Master Builders Co.
  - Sonneborn, L., Sons, Incorporated
  - Solvay Sales Corp.
- **Concrete Piling**—See Piling—Concrete
- **Concrete Ready Mixed**
  - Transit Mixers, Inc.
- **Concrete Surface Treatment**
  - Master Builders Co.
  - Solvay Sales Corp.
- **Conduit for Underground Heating Pipes**
  - Ric-wiL Company
- **Conduits**
  - Fibre Conduit Co.
- **Conduo-Base**
  - Conduo-Base Co.
- **Coping Wall**
  - Clay Products Association
- **Copper and Brass**
  - Baltimore Copper Mills
  - Revere Copper & Brass, Inc.
- **Copper Sheets**
  - Baltimore Copper Mills
  - Revere Copper & Brass, Inc.
- **Cork Covering**
  - Armstrong Cork & Insulation Co.
- **Cork Tile Flooring**
  - Armstrong Cork Company, Custom Floors Dept.
- **Corkboard**
  - Armstrong Cork & Insulation Co.
- **Covering—Pipe and Boiler**
  - Armstrong Cork & Insulation Co.
  - Johns-Manville Corporation
  - Ric-wiL Company
- **Door Closers**—Corbin, P. & F.
  - Norton Door Closer Co.
  - Sargent & Company
- **Door and Window Frames**
  - Andersen Frame Corp.
  - Allen & Drew, Inc.

WELDED

Heavy tubular frame strongly welded

BRONZE DOORS for COMMERCIAL BUILDINGS

The rails and stiles of this door consist of heavy tubular members, the joints of which are strongly welded. The inner edge of the frame is trimmed with shapely mouldings used for securing the center panel. With necessary hardware furnished and applied the complete ensemble presents a unit appropriate for use in the finest commercial buildings.

Send for complete description and F. S. details.

THE
Kawneer
COMPANY
Niles, Mich.
Subsidiary: Berkeley, Calif.

ALSO SHOWER STALLS AND SHOW CASE DOORS

EVANS VANISHING DOOR WARDROBES

Yesterday

TODAY

A rapidly increasing number of architects are economizing space—in school construction especially—and very considerably increasing convenience with the aid of Evans Vanishing Door Wardrobes, which are so designed in relation to the "Vanishing Door" feature, that the same accommodation is secured in 12′ x 2′ as the old kind give in 8′ x the full length of the classroom. No special heating and ventilation are required and no wall is necessary to separate cloakroom from classroom. The "Vanishing Door" feature, which is soundless, mischief proof and operates at a touch, is mechanically perfect and incapable of getting out of order. May we send our illustrated catalogue with *all* the facts about Evans Vanishing Door Wardrobes?

Represented in Sweet's—page C3656

W. L. EVANS
WASHINGTON, INDIANA, U. S. A.

Doors
- Bayley, William, Company
- Compound & Pyrono Door Co.
- Cornell Iron Works, Inc.
- Dahlstrom Metallic Door Co.
- Detroit Steel Products Co.
- Hamlin, Irving
- Hyde-Murphy Co.
- International Casement Co.
- Kawneer Company
- Kinnear Mfg. Co.
- Peelle Company, The
- Roddis Lumber & Veneer Co.
- Sanymetal Products Co.
- Security Fire Door Co.
- Thorp Fire Proof Door Company
- United Metal Products Co.
- Wheeler-Osgood Co.
- Weis, Henry, Mfg. Co.
- Wilson, J. G., Corp.

Drains
- Crampton-Farley Brass Co.
- Josam Mfg. Co.

Drawing Inks
- Higgins, Chas. M., & Co.

Drives—Cog Belt
- Dayton Rubber & Mfg. Co.

Electric Switches
- Hart & Hegeman Mfg. Co.
- Hubbell Harvey, Inc.

Electrical Equipment
- Adam, Frank, Electric Co.
- American District Tel. Co.
- Bryant Electric Company
- Connecticut Tel. & Elec. Corp.
- Fibre Conduit Co.
- General Electric Company
- Graybar Electric Co.
- Hart & Hegeman Mfg. Co.
- Holtzer-Cabot Electric Co.
- Hubbell Harvey, Inc.
- Imperial Electric Co.
- Lincoln Electric Co.
- Westinghouse Electric & Mfg. Co.

Elevator Doors
- Peelle Company, The
- Security Fire Door Co.
- Tyler Company
- United Metal Products Co.

Elevator Inclosures
- United Metal Products Co.

Elevators
- Otis Elevator Company
- Tyler Company
- Westinghouse Electric Elevator Co.

Enamels
- Du Pont de Nemours, E. I., & Co., Inc.
- Pratt & Lambert, Inc.
- U. S. Gutta Percha Paint Co.

Engineers—Inspection
- Hunt, Robert W., Company

Expanded Casings—Milwaukee Corrugating

Expanded Metal
- Truscon Steel Company

Fence Post—Steel
- American Steel & Wire Co.

Fence—Woven Wood
- DuBois Fence & Garden Co., Inc.
- Reeves Robert C., Co.

Fences—American Steel & Wire Co.
- Fiske, J. W., Iron Works

Finishing Lime
- Ohio Hydrate & Supply Co.

Fire Exit Devices
- Vonnegut Hardware Company

Fireplace Construction
- Covert H. W., Co.

Fireplace Unit—Heatilator Co.

Fireproof Doors, Shutters and Windows
- Compound & Pyrono Door Co.
- Cornell Iron Works, Inc.
- Dahlstrom Metallic Door Co.
- Detroit Steel Products Co.
- Kawneer Company
- Mesker Bros. Iron Company
- Peelle Company, The
- Thorp Fire Proof Door Company
- Truscon Steel Company
- United Metal Products Co.

YOU need only to know the facts about the Air-Way Aeriet to realize that here indeed is the heating system for which American standards of living have been waiting.

Be honest with yourself and admit that you have never been entirely satisfied with any method heretofore known. None available measured fully up to the other characteristics of modern residence and office architecture. The heating system had not kept pace with the other elements in up-to-date buildings.

Now consider Aeriet. It is wholly concealed within walls or partitions. It projects warmed—not hot—air out into the room at living level, rather than packing heat against the ceiling and forcing it down to where the people are. There are no radiators to clutter up interior arrangements, nor any smudge on the walls.

And what is more important than even this better distribution, is the economy of operation, the simplicity of the automatic thermostatic control, and the ease of installation. There are no service problems. Aeriet connects to the usual hot water, steam, or electric lines. It is a revelation in heat engineering that you will want to learn about. That's easy. Simply use the coupon.

Air-Way
TRADE MARK
AERIET

Please send me the Air-Way Aeriet book.

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Title....................................

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AR

AIR-WAY ELECTRIC APPLIANCE CORPORATION

TOLEDO ∾ *Heating Systems Division* ∾ OHIO

SEE OUR Catalogue in SWEETS

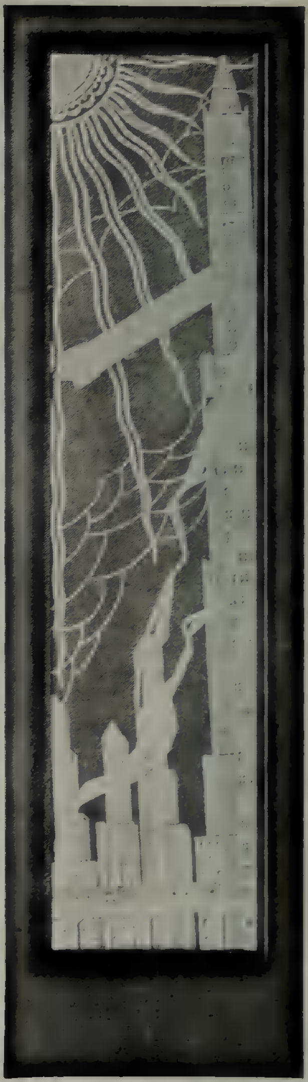
Door Panels of Stainless Steel

No material of recent years has met with such wide-spread comment and interest in architectural circles as the new Enduro Nirosta Steel which takes a weatherproof finish that gleams like polished silver.

Produced in this country under Krupp License, Enduro affords the architect a white metal with all the permanence of brass and bronze. Alert to this development, United Metal Products Company is now furnishing etched door panels of surpassing beauty in this enduring metal.

A plastic baked-on enamel process provides any color effect desired either grained or plain. The metal itself supplies the relief and contrast. Photography cannot do justice to the beauty of the doors shown here. Write to us for further information on this important development.

THE UNITED METAL PRODUCTS CO.
CANTON, OHIO



Fireproofing
See "Concrete Construction," "Covering, Pipe and Boiler," "Fireproof Doors, Shutters and Windows," "Lath-Metal," Tile
Flashing Wall
Cheney Company
Floor Clips
Bull Dog Floor Clip Co.
Floor Covering
Congoleum-Nairn Co.
Goodyear Tire & Rubber Co.
Stedman Products Co.
Wright Rubber Products Co.
Floor Hardeners
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Sonneborn, L., Sons, Incorporated
Truscon Laboratories
Floor Plate Steel—Alan Wood Steel Co.
Carnegie Steel Co.
Floor Plates—Alan Wood Steel Co.
Flooring
Alan Wood Steel Co.
Armstrong Cork Co. (Flooring Division)
Carter Bloxonend Flooring Co.
Cellized Oak Flooring Co.
Congoleum-Nairn Co.
Goodyear Tire & Rubber Co.
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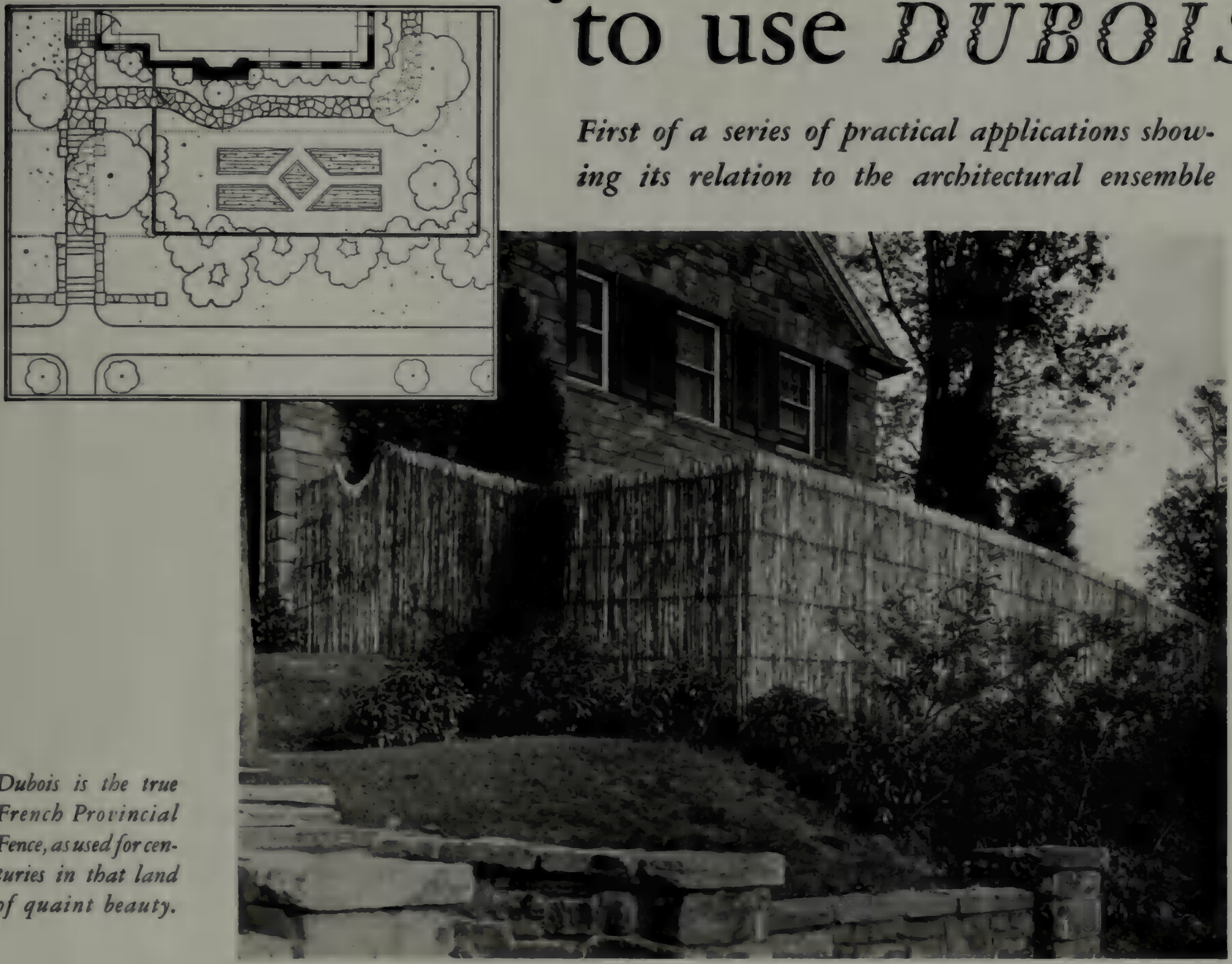
Norton Company
Oak Flooring Mfrs. Assoc. of U. S.
Stedman Products Co.
Structural Gypsum Corp.
United States Gypsum Co.
Wright Rubber Products Co.
Zenitherm Company, Inc.
Flooring—Composition
Congoleum-Nairn Co.
Zenitherm Company, Inc.
Flooring—Engineers and Contractors
Bonded Floors Co.
Flooring—Wood Block—Builtup
Carter Bloxonend Flooring Co.

Floors—Fireproof
Alan Wood Steel Co.
Structural Gypsum Corp.
U. S. Gypsum Co.
Footlights—Kliegl Bros.
Fountains—Drinking
Century Brass Works, Inc.
Rundle-Spence Mfg. Co.
Taylor, Halsey W.
Furniture—American Seating Co.
Marble, B. L., Chair Co.
Garage Engineers—Ramp Buildings Corp.
Garage Hardware—Corbin, P. & F.
Garden Furniture and Ornaments
Hartmann-Sanders Company
Gas Boilers
American Gas Products Co.
American Radiator Co.
Bryant Heater & Mfg. Co.
Gas Ranges—American Stove Company
Glass—Window
Adamston Flat Glass Co.
American Window Glass Co.
Pittsburgh Plate Glass Co.
Glass Wire—See Wire Glass
Granite—Bates Bros. Seam Face Granite, Inc.
National Bldg. Granite Quarries Assn.
Woodbury Granite Co., Inc.
Greenhouses—King Construction Co.
Grilles—Tuttle & Bailey Mfg. Co.
Wickwire-Spencer Steel Co.
Gypsum Plaster—See Plaster, Gypsum
Gypsum Slabs—Structural Gypsum Corp.
Hardware
Corbin, P. & F.
Rixson, Oscar C., Company
Russell & Erwin Mfg. Co.
Sargent & Company
Soss Manufacturing Company
Stanley Works
Vonnegut Hardware Company
Weis, Henry, Mfg. Co.
Yale & Towne Mfg. Co.

Where, Why & When . . . . to use *DUBOIS*

First of a series of practical applications showing its relation to the architectural ensemble



Dubois is the true French Provincial Fence, as used for centuries in that land of quaint beauty.

HERE is an instance where an architect had three conditions to meet and found a single solution to them all with Dubois.

First, he needed *privacy.* Dubois supplied it harmoniously, effectively, quickly.

Second, *beauty.* Dubois has a quaint, rustic charm born of its Old-World origin.

Third, *economy.* Dubois gives a lifetime of service without need of paint or upkeep expense.

In addition, Dubois has the advantage of being refreshingly different, yet it blends easily and naturally with any setting. No other fence is quite like it.

Be sure to specify Dubois by name. The genuine is made in France and imported solely by this company Made of live, French chestnut and Copperweld wire. Comes in sections 5 ft. wide and in five heights: 3′10″, 4′11″, 6′6″ 8′ and 10′.

A beautiful Album showing the wide variety of Dubois uses, with full descriptions and prices, sent on request.

DUBOIS

REG. U. S. PAT. OFF.

Woven Wood Fence

Made in France

***DUBOIS* FENCE & GARDEN CO., Inc.**

101 Park Avenue *Telephone LEXington 2404* **New York, N. Y.**

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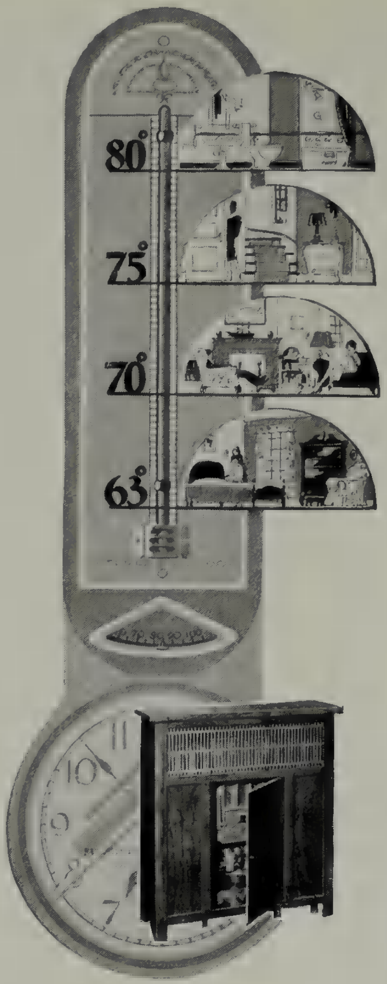

Sensible temperature

NOW each room in the home can be heated at any desired temperature. 80 degrees for the bathroom; 75 degrees for the nursery; 70 degrees for the living room; 63 degrees for the unused bedroom. Sensible temperature.

The Duplex Unit Control Gas Heating System sets the pace for comfortable, sensible, economical home heating. How often have you wished for just such a system to satisfy the demands of your clients?

Send for A. I. A. File

Mr. Architect and Heating and Ventilating Engineer, you should learn all the facts concerning the Duplex Unit Control Gas Heating System. For your especial benefit we have prepared all the facts and bound them in a file folder for convenience in reference. A copy will post you on the latest development in scientific home heating. Send for it.

DUPLEX
UNIT CONTROL
GAS HEATING SYSTEM

ROBERTS-GORDON APPLIANCE CORPORATION
DELAWARE AVENUE AT TUPPER STREET
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Heat Insulation
- Johns-Manville Corporation
- Ric-wiL Company

Heat Regulator Oven—American Stove Company

Heating Apparatus
- Aerofin Corporation
- Air-Way Electric Appliance Corp.
- American Blower Co.
- American Gas Products Corp.
- American Radiator Company
- Bryan Steam Corp.
- Bryant Heater & Mfg. Co.
- Buffalo Forge Co.
- Dunham, C. A., Company
- Heatilator Co.
- Heggie-Simplex Boiler Co.
- Johnson, S. T. Co.
- Modine Manufacturing Co.
- Nash Engineering Company
- Nelson, Herman, Corp.
- Peerless Unit Ventilation Co., Inc.
- Roberts-Gordon Appliance Corp.
- Smith, H. B., Company
- B. F. Sturtevant Co.
- Williams Oil-o-matic Heating Corp.

Hinges—Gravity
- Sanymetal Products Co.

Hinges—Invisible
- Soss Manufacturing Company

Humidifier
- Lewis Corporation

Insulation—Armstrong Cork & Insulation Co.
- Flax-li-num Insulating Co.
- MacAndrews & Forbes Co.
- U. S. Mineral Wool Co.

Interior Communication System
- Automatic Electric Co.
- Connecticut Tel. & Elec. Corp.
- Holtzer-Cabot Electric Co.

Kitchen Units
- Circle A Products Corp.
- International Nickel Co.

Lath—Metal—American Steel & Wire Co.
- Milwaukee Corrugating Co.
- Truscon Steel Company
- Wheeling Corrugating Co.

Laundry Chutes—Pfaulder Co.

Lighting Control—Theatre
- Adam, Frank, Electric Co.

Lighting Equipment
- Belson Mfg. Co.
- Crouse-Hinds Co.
- Graybar Electric Co.
- Kliegl Bros.
- Landis Eng. & Mfg. Co.
- Pearlman, Victor S., & Co.
- Smyser-Royer Company
- Westinghouse Electric & Mfg. Co.

Lime—Kelley Island Lime & Transport Co.
- National Mortar & Supply Co.
- Ohio Hydrate & Supply Co.
- National Lime Association

Limestone—Indiana Limestone Company
- Victor Oolithic Stone Co.

Linoleum
- Armstrong Cork Company, Custom Floors Dept.
- Congoleum-Nairn Co.

Lockers—Steel
- Nat'l Assoc. Flat Rolled Steel Mfrs.

Locks—Corbin, P. & F.
- Russell & Erwin Mfg. Co.
- Sargent & Company
- Yale & Towne Mfg. Co.

Lumber—See Woods

Mail Chutes—Cutler Mail Chute Co.

Mantels—Artificial Stone
- Jacobson Mantel & Ornament Co.

Mantels—Wood
- Georgian Mantel Co.

Marble—Georgia Marble Company
- Vermont Marble Co.

Cork Insures Silence

THE University of Washington is justly proud of this fine library. There is beauty here, and quiet. A pleasant place in which to study. Distracting sounds—clatter of feet and scraping of chairs—are silenced with the hand-laid floor of Armstrong's Cork Tile.

In this library, in other libraries . . . and in churches, hospitals, and schools . . . silence is important. That is why the answer is Armstrong's Cork Tile. The resilient tiles silently cushion every step.

An Armstrong Cork Tile Floor breathes the quiet dignity and old world beauty that distinguishes a skilfully designed hand-laid floor. Three shades of rich brown, natural colorings of clean baked cork, allow the architect to plan appropriate designs in keeping with *any* type of interior.

Nor are considerations of a more practical nature lacking in the selection of a floor of Armstrong's Cork Tile. Here are offered warmth, foot-comfort, and ease of cleaning. And permanence—a long life with no loss of appearance or cushioning resiliency. In short, all the quality and dependability that architects have learned to expect in a material sold under the name Armstrong, whether it be linoleum, corkboard insulation, or any other product.

* * *

Let us send you samples of these beautiful tiles. Also, our booklet, "Custom-Built Floors of Cork," which will give you all the facts about Cork Tile, and Linotile, too, another hand-laid Armstrong Floor. Address Armstrong Cork Company, Custom Floors Department, Lancaster, Pennsylvania.

Main reading room in University of Washington Library, Seattle, Washington. The floor is Armstrong's Cork Tile. Bebb & Gould, architects.

Armstrong's
Ⓐ
Product

Armstrong's CUSTOM FLOORS

LINOTILE **CORK TILE**

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM

The illustration shows the Architects' and Builders' Building, Indianapolis, Ind., for which Rubush and Hunter were the architects. The pier caps above the second story windows and the pier caps and frieze above the tenth floor are of RACKLE ARTSTONE—illustrating the suitability of ARTSTONE for use where another material would add materially to the cost. Architects will note with interest that the difference between the two materials when thus used in conjunction, cannot be detected by ordinary observation.

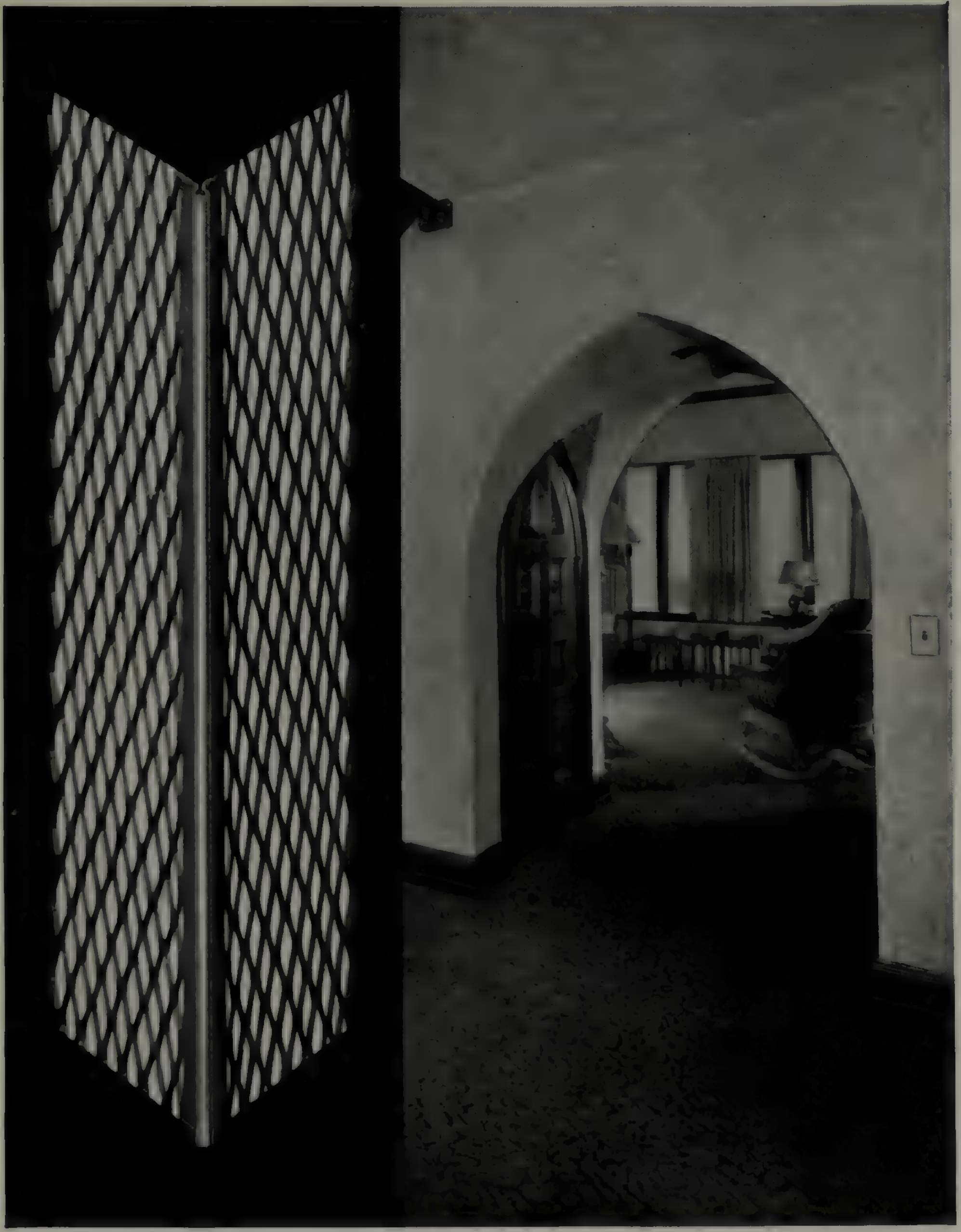
Our catalogue is in Sweet's—pages A 526-527

THE GEORGE RACKLE & SONS COMPANY
CLEVELAND, OHIO
Established 1870

RACKLE ARTSTONE

Memorials—Church
  American Seating Company
Metal Corner Bead
  Milwaukee Corrugating Co.
  Truscon Steel Company
  Wheeling Corrugating Co.
Mineral Wool—U. S. Mineral Wool Co.
Monel Metal
  International Nickel Co., Inc.
Mortar—Louisville Cement Co.
  National Lime Association
  National Mortar & Supply Co.
Nurseries—Andorra Nurseries
Oil Burners
  Johnson, S. T. Co.
  Williams Oil-o-matic Heating Corp.
Ornamental Metal
  Aluminum Co. of America
  American Brass Co.
  Fiske, J. W., Iron Works
  General Bronze Corporation
  Smyser-Royer Company
Paints—Aluminum Co. of America
  Berry Brothers
  Du Pont de Nemours, E. I., & Co., Inc.
  National Lead Co.
  Pittsburgh Plate Glass Co.
  Pratt & Lambert, Inc.
  U. S. Gutta Percha Paint Co.
  United States Gypsum Co.
Panelboards
  Adam, Frank, Electric Co.
  General Electric Co.
  Trumbull Electric Mfg. Co.
  Westinghouse Electric & Mfg. Co.
Paper—Toilet
  Victoria Paper Mills Co.
Partitions
  Circle A Products Corp.
  Hamlin, Irving
  Sanymetal Products Co.
  U. S. Gypsum Co.
  Wilson, J. G., Corp.
Partitions—Toilet
  Sanymetal Products Co.
Pergolas—Hartmann Sanders Company
Piling—Concrete
  MacArthur Concrete Pile Corp.
  Raymond Concrete Pile Co.
Piling—Steel Sheet
  Carnegie Steel Co.
Pipe
  National Tube Company
  Reading Iron Company
  Republic Iron & Steel Co.
  Youngstown Sheet & Tube Co.
Plate Glass—Pittsburgh Plate Glass Co.
Plaster Key—Vortex Mfg. Co.
Plaster—Ornamental
  Jacobson & Company
Plumbing Fixtures
  Case, W. A., & Son Mfg. Co.
  Church, C. F., Mfg. Co.
  Crane Co.
  Hays Manufacturing Co.
  Hoffmann & Billings Mfg. Co.
  Kohler Co.
  Parker Charles Company
  Penberthy Injector Co.
  Rundle-Spence Mfg. Co.
  Sanymetal Products Company
  Smith & Wesson
  Taylor, Halsey W.
  Trenton Potteries Company
Protective Service
  American District Tel. Co.
  Western Electric
Pumps—Dunham, C. A., Co.
  Nash Engineering Company
  Westco-Chippewa Pump Co.
Radio Planning
  R. C. A. Victor Co., Inc.
  Western Electric

The Expanded Wings of This Corner Bead Offer Advantages Found in No Other



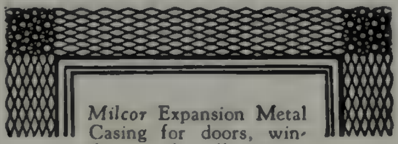
PRACTICALLY indestructible plaster corners . . . lower erection cost due to faster application . . . are the major advantages offered by *Milcor* Expansion Corner Bead. It was developed by *Milcor* engineers to meet the demand for a corner bead that would give greater strength and simplify erection. Today its success is unquestioned and outstanding.

The wings of expanded metal permit keying the plaster right up to the bead. Every square inch of these wings reinforces the plaster. There are no smooth surfaces to which the plaster may or may not "stick". The result is effective reinforcement where it is most needed . . . and substantial assurance that the plaster corners will withstand much more than the average abuse.

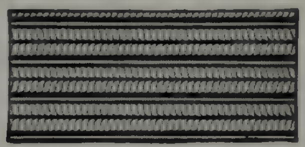
There is no hunting for nail holes with *Milcor* Expansion Corner Bead. It goes up fast . . . and can be wired, stapled or nailed to any kind of wall construction at lowest cost. Truly beautiful arches are encouraged by the use of *Milcor* Expansion Corner Bead. It lends itself easily to graceful curves . . . and assures lasting beauty.

Specify *Milcor* Expansion Corner Bead . . . it has no "equal". Use it on every exposed plaster corner . . . as giving greatest assurance of freedom from chipping or cracking.

You may be interested in a sample section of this better bead. Shall we send one to you?



Milcor Expansion Metal Casing for doors, windows and wall recesses is also distinguished by the expanded metal wings. It cannot pull away during settlement and will not leave cleavage cracks.



Milcor Stay-Rib Metal Lath has unusual strength and rigidity. Its design . . . a *Milcor* patent . . . affords the maximum protection against plaster cracks.

MILCOR

Expanded Metal Building Products are Available in

ARMCO Ingot Iron

Copper Alloy Steel

Save with Steel

MILWAUKEE CORRUGATING COMPANY
1407 Burnham St., Milwaukee, Wis.

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Branches: Chicago, Ill., Kansas City, Mo., La Crosse, Wis.
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Eastern Plant: THE ELLER MANUFACTURING CO., *Canton, Ohio*

The Bull Dog Method Saves Time and Labor

STEP ONE—PLACING CLIPS. *Note how easily clips are placed in exactly proper position. Single or double guide board insures correct alignment.*

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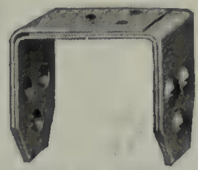

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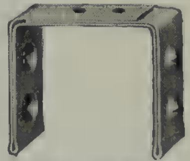
Original Patent granted June 14, 1921
Reissue Patent granted June 29, 1924
Process Patent granted May 19, 1925



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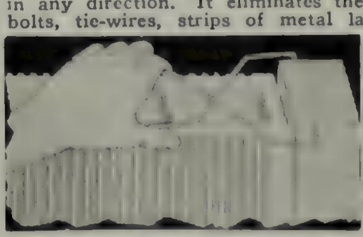

- **Radiator Cabinets**
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- **Ranges**—American Stove Co.
- **Refrigerators**
  - McCray Refrigerator Sales Co.
- **Roof Insulator**
  - Armstrong Cork & Insulation Co.
- **Roof Sumps**—Mahon, R. C., Company
- **Roofing**—American Sheet & Tin Plate Co.
  - Carey, Philip, Company
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  - Nat'l Assoc. Flat Rolled Steel Mfrs.
  - Wheeling Corrugating Co.
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- **Roofing Slates**
  - O'Brien Bros.
  - Owens, Owen W., Sons, Inc.
  - Rising & Nelson Slate Co.
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- **Roofing—Tin**
  - American Sheet & Tin Plate Co.
  - Taylor, N. & G., Company
- **Rolling Doors**
  - Cornell Iron Works
  - Kinnear Mfg. Co.
  - Wilson, J. G., Corp.
- **Safety Tread**—Alan Wood Steel Co.
  - Norton Company
- **Sash Balances**—Caldwell Mfg. Co.
- **Sash Chain**—American Chain Co., Inc.
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- **Sash—Cord**
  - Samson Cordage Works
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- **Sash—Wrought Iron**
  - Mesker Bros. Iron Co.
- **Scaffolding—Steel**
  - Patent Scaffolding Co.
- **Screens—Rolling**
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- **Seating**—American Seating Co.
- **Sheet Metal**—Alan Wood Steel Co.
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- **Shingles**
  - Johns-Manville Corporation
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- **Showers**—Hoffmann & Billings Mfg. Co.
- **Signal Systems**
  - American District Tel. Co.
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- **Slate—Roofing**
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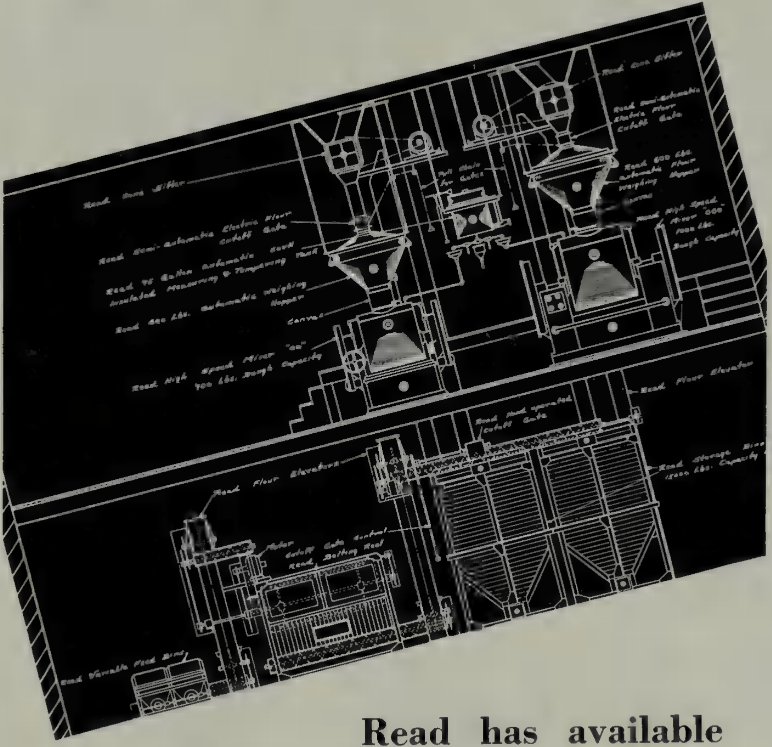
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INDEX TO ADVERTISEMENTS

Classified Directory of Advertisers, Pages 194-208 Inclusive

Catalogues of concerns marked (S) are in Sweet's Architectural Catalogues for 1930.

(S) Adam, Frank, Electric Co. 154
(S) Adamston Flat Glass Co. 178
(S) Aerofin Corporation 102
Air-Way Electric Appliance Corp. 197
(S) Alan Wood Steel Co. 158
(S) Alberene Stone Company 70
(S) Aluminum Co. of America 29–30–31–132
(S) American Blower Co 128
American Bridge Co 82
(S) American District Telegraph Co. 58
American Institute of Steel Const. 6
(S) American Radiator Co 43–90–171
American Seating Co 103
American Sheet & Tin Plate Co. 73
(S) American Steel & Wire Co 40
(S) American Telephone & Telegraph Co. 191
American Walnut Mfrs. Assoc 5
(S) American Window Glass Co 101
(S) Andersen Frame Corp 8–9
Andorra Nurseries, Inc 168
Architectural Record 142–144–170
Architects' Announcements 184
(S) Arkansas Oak Flooring Co 47
(S) Armstrong Cork Co 201
Custom Floors Dept.
(S) Armstrong Cork & Insulation Co. 20
(S) Art Metal Construction Co 45
Atlas Metal Works 178
(S) Automatic Electric, Inc 125

Baltimore Copper Mills Division Revere Copper & Brass, Inc 166
(S) Batchelder-Wilson Co 16
(S) Bates Bros. Seam-Face Granite Co., Inc. 34
(S) Bayley, William, Company 78
Belson Mfg. Co 174
(S) Berry Brothers, Inc 49
(S) Bethlehem Steel Co 149
Birch Mfrs 146
(S) Bonded Floors 17–18
(S) Bruce, E. L., Co 47
Bryan Steam Corp 181
(S) Bryant Electric Co 11
(S) Bryant Heater & Mfg. Co 19
(S) Buffalo Forge Co 175
(S) Bull Dog Floor Clip Co 204

(S) Caldwell Mfg. Co 166
(S) Carey, Philip, Co 13
Carnegie Steel Co 131
(S) Carter Bloxonend Flooring Co 37
Case, W. A. Mfg. Co 156
(S) Cast Stone Institute 127
(S) Cellized Oak Flooring Co., Inc 47
(S) Central Alloy Steel Corp 137
Century Brass Works Inc 154
(S) Cheney Company 148
(S) Circle A Products Corp 192
(S) Compound & Pyrono Door Co 10
(S) Congoleum-Nairn Co 17–18
(S) Concrete Engineering Co 135
(S) Conduo Base 152
Connecticut Tel. & Electric Corp. 39
(S) Corbin, P. & F. 91
(S) Cornell Iron Works, Inc 172
Construction Statistics 186
(S) Covert H. W. Company 98
(S) Crane Co 164
(S) Crittall Casement Window Co 183
(S) Cutler Mail Chute Co 176

(S) Dahlstrom Metallic Door Co 109–152
Davey Tree Expert Co., Inc 51
Dayton Rubber Mfg. Co 145
(S) Detroit Show Case Co 68
(S) Detroit Steel Products Co 81
Dodge, F. W., Corp 140
(S) Dubois Fence & Garden Co., Inc 199
(S) Dunham, C. A., Co 104
(S) Du Pont, E. I. de Nemours & Co., Inc 42

(S) Evans, W. L. 196
(S) Excelso Products Corp 188
Div. of Amer. Radiator Co.

(S) Federal Cement Tile Co 23
(S) Federal Seaboard Terra Cotta Corp. 66
(S) Finzer Bros. Clay Co 141
(S) Flax-li-num Insulating Co 28

(S) General Electric Co 138
(S) Georgia Marble Co., The 129
Georgian Mantel Co 178
(S) Graybar Electric Co 75–134
(S) Guastavino R. Company 114

(S) Hamlin Irving 172
(S) Hart & Hegeman Division 121
The Arrow-Hart & Hegeman Electric Co.
(S) Hays Mfg. Co 69
Heintz Mfg. Co 170
Heggie-Simplex Boiler Co 3
(S) Higgin Manufacturing Co 158
Higgins, Chas. M., & Co., Inc 176
(S) Hoffmann & Billings Mfg. Co 118
(S) Hubbell Harvey, Inc 21
(S) Hunt, Robert W., Company 160
(S) Hyde-Murphy Co 174

Imperial Electric Company 177
(S) International Nickel Co 163

Jacobson & Company 93
(S) Johns-Manville Corporation 26–27
(S) Johnson, S. T., Co 126
(S) Josam Manufacturing Co 161

(S) Kalman Steel Co 76
(S) Kawneer Company 193–194–195
(S) Kelley Island Lime & Transport Co. 59
(S) King Construction Co 74
(S) Kinnear Mfg. Co 185
(S) Kliegl Bros 172
(S) Knapp Bros. Mfg. Co 152
(S) Knight, Maurice A 172
Kohler Co 99

(S) Landis Eng. & Mfg. Co 150
(S) Leonard Rooke Co 168
Lewis Corporation 116
(S) Lincoln Electric Co 110
(S) Long-Bell Lumber Co 47
(S) Louisville Cement Co 189
(S) Ludowici-Celadon Co 46
(S) Lupton's, David, Sons Co 169

(S) MacArthur Concrete Pile Corp 136
(S) McCray Refrigerator Sales Corp 113
(S) Mahon, R. C., Company 115–170
Marble Chair Co., B. L 164
(S) Mesker Bros. Iron Co 57
(S) Milwaukee Corrugating Co 203
Motor Wheel Corp 77

(S) Nash Engineering Co 35–36
(S) Nashville Hdw. Flooring Co 47
National Assoc. of Flat Rolled Steel Mfrs. 139
(S) National Bldg. Granite Quarries Assoc. 86
(S) National Fire Proofing Corp 48
(S) National Lead Company 38
(S) National Lime Association 41–92
(S) National Mortar & Supply Co 165
(S) National Terra Cotta Society 206
National Tube Co 80
(S) Nelson, Herman, Corp 53–54
(S) Northwestern Terra Cotta Co 14
(S) Norton Company 119
(S) Norton Door Closer Co 50
Notes in Brief 180–182

(S) Oak Flooring Mfrs. Assoc. of U. S 205
(S) O'Brien Bros. Slate Co., Inc 56
(S) Otis Elevator Co 153
(S) Owens' Sons, Owen W., Inc. 52

Paramount Water Softener Corp 176
(S) Parker Charles Company 79
(S) Patent Scaffolding Co 120
Pearlman, Victor S. & Company 146
(S) Peelle Company, The 44
(S) Peerless Unit Ventilation Co., Inc. 143
(S) Penberthy Injector Co 187
(S) Pfaltz & Bauer, Inc 174
(S) Pittsburgh Plate Glass Co 67–85
Port Orford Cedar Prod. Co 55
(S) Pratt & Lambert, Inc 33
Publishers Page 87

(S) R. C. A. Victor Co., Inc 156
(S) Rackle, Geo., & Sons Co., The 202
(S) Raymond Concrete Pile Co 7
(S) Read Machinery Co 208
(S) Reading Iron Co 108
Recent Trade Publications 188
Reeves Robert C. Co 178
(S) Republic Iron & Steel Co 71–72
Revere Copper & Brass, Inc 24
(S) Ric-wiL Co 151
(S) Rising & Nelson Slate Co 32
(S) Rixson, Oscar C., Company 62
Roberts Gordon Appliance Corp 200
(S) Roddis Lumber & Veneer Co 105
(S) Rolscreen Co 4th Cover
(S) Rome Brass Radiator Corp 159
Rundle-Spence Mfg. Co 190
(S) Russell & Erwin Mfg. Co 95

(S) Samson Cordage Works 168
(S) Sanymetal Products Co 12
Sargent & Co 133
(S) Security Fire Door Co 207
(S) Sheldon, F. C., Slate Co 25
(S) Silver Lake Co 166
(S) Smith, H. B., Co 83
(S) Smith & Egge Mfg. Co 170
Smith & Wesson 88
(S) Sonneborn, L., Sons, Inc 209
(S) Soss Mfg. Co 176
(S) Spencer Turbine Co 211
(S) Stanley Works 15
Stone & Webster Eng. Corp 117
(S) Structural Gypsum Corp 3rd Cover
(S) Sturtevant, B. F., Co 173
Sweet's Arch. Catalogues 106–107

(S) Taylor, Halsey W., Co 60
Taylor, N. & G., Company 174
(S) Thompson Mfg. Co 148
(S) Thorp Fire Proof Door Co 61
(S) Transit Mixers, Inc 124
Trenton Potteries Co 63
(S) Trumbull Electric Mfg. Co 167
(S) Truscon Laboratories 2
(S) Truscon Steel Co 212

(S) Union Metal Mfg. Co 130
(S) United Metal Products Co 152-198
(S) U. S. Gutta Percha Paint Co 89
(S) U. S. Mineral Wool Co 162
Universal Atlas Cement Co 2nd Cover

(S) Vermont Marble Co 168
(S) Ventilouvre Co 152
(S) Victor Oolitic Stone Company 147
(S) Vitrolite Co 4
(S) Vonnegut Hardware Co 112
(S) Vortex Mfg. Co 100

(S) Weatherbest Stained Shingle Co., Inc. 150
(S) Weis, Henry, Mfg. Co 157
(S) Westco-Chippewa Pump Co 160
(S) Western Pine Mfrs. Assoc 65
(S) Westinghouse Electric Elevator Co 123
(S) Westinghouse Traction Brake Co 155
(S) Wheeling Corrugating Co 84
(S) Wheeler-Osgood Co 22
(S) Wickwire Spencer Steel Co 162
(S) Williams Oil-o-matic Heating Corp 94
(S) Williams Pivot Sash Co 96
(S) Wilson, J. G., Corp 179
(S) Wright Rubber Products Co 97

(S) Yale & Towne Mfg. Co 111
(S) Youngstown Sheet & Tube Co 122

(S) Zenitherm Company, Inc 64

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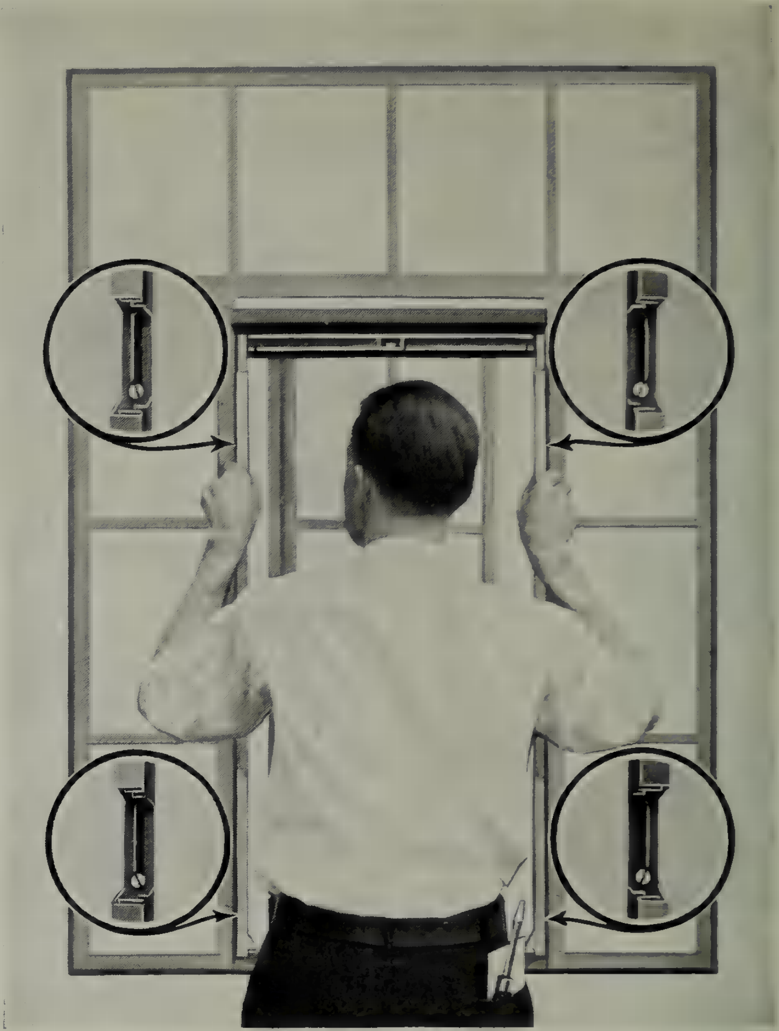
ST 3092

SIMPLICITY OF INSTALLATION OF CASEMENT Rol-up SCREENS on TRUSCON STANDARD CASEMENTS



Attaching Assembled Rol-Up Screen to Truscon Casement. Note simplicity of screw connections.

Once more Truscon proves its leadership by providing ideal Rol-up Screens for all its Standard Casements, Model No. 5.

Truscon Rol-up Screens are simply installed in a few minutes' time by any mechanic. They are quickly assembled by telescoping guides over end of housing and are attached by six screws provided with the casement.

Truscon Rol-up Screens are of the same high quality that has made Truscon Standard Steel Casements preferred by discriminating builders. Due to large scale production they are very moderate in cost.

In many locations the Truscon Side Hinged Casement Screen can be used with entirely satisfactory results and at a considerable saving in cost. Truscon solves the screening problem for steel casements, simply and economically.

Write for literature and quotations

STEEL WINDOW DIVISION
TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO
Warehouses and Offices in Principal Cities
Truscon Steel Company of Canada, Limited, Walkerville, Ontario

Rol-up Screen completely installed and in operation.

A PRODUCT OF TRUSCON

STANDARD CASEMENTS MODEL No. 5 with CASEMENT SCREENS

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